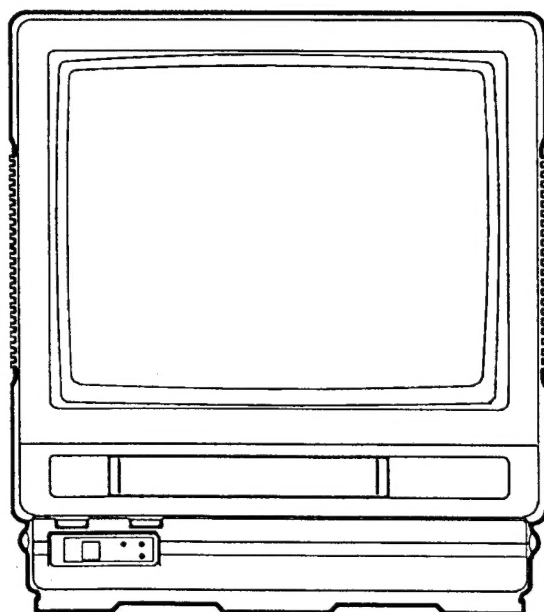




SERVICE MANUAL

14" COLOR TV / VCR COMBINATION

TVR-1400A MK6



GENERAL SPECIFICATIONS

- | | |
|---|--|
| <p>A) System</p> <p>1) CRT: 14", Tinted Tube</p> <p>2) Color system: PAL / MESECAM
NTSC 4.43
(Playback only)</p> <p>3) Receivable channel: System B/G
(C.C.I.R. ch +
O.I.R.T. ch) [VHF L]...E2~E4ch
[VHF H]...E5~E12ch
[UHF]...21~69ch
System D/K
[VHF L]...R1~R5ch
[VHF H]...R6~R12ch
[UHF]...21~69ch</p> <p>4) Tuning system: Voltage synthesizer
(40 stations can be
memorized)
Automatic channel preset</p> <p>5) Control knobs</p> <p>Main switch: Push switch (rear side)</p> <p>Power: Key</p> <p>Volume: 2-Keys (up/down)</p> <p>Channel: 2-Keys (up/down)</p> <p>Play: Key</p> <p>Stop/Eject: Key</p> <p>Fast Forward: Key</p> <p>Rewind: Key</p> <p>Record: Key</p> <p>6) External connections</p> <p>Antenna: 75Ω IEC jack</p> <p>Video in: BNC jack</p> <p>Audio in: RCA jack</p> <p>Earphone jack: ø3.5mm jack (switched)</p> <p>Power supply: AC inlet</p> <p>7) Degauss: Automatic Degaussing
(D. G. system runs as
main power switch is
Turned on.)</p> <p>8) Speaker: 3" round type</p> <p>9) Audio output power: 0.9 W</p> <p>B) VCR</p> <p>1) Recording system: Twin head herical scanning
HQ system</p> <p>2) Loading system: Front loading</p> <p>3) Video signal: PAL 625 lines, 50Hz</p> <p>4) Tape format: Width 1/2", 1 Audio track</p> <p>5) Rec/Play time: 4 hours
(PAL/MESECAM, E-240)
2 hours 40 minutes
(NTSC, T-160)</p> | <p>6) Tape speed: 23.39 mm/sec
(PAL/MESECAM)
33.40 mm/sec (NTSC)</p> <p>7) Timer recording: 1 month, 4 events
(Daily or weekly recording
is available.)</p> <p>8) One touch timer
recording: Every 30 minutes,
8 hours max</p> <p>9) Auto functions: Power On/Off, Play,
Rewind, Eject, Rerpet
(29 keys)</p> <p>C) IR Remote Control: Power, Call, Sleep,
10 numerical keys (0~9)
Mute, Program, Select,
Channel/Tracking Up,
Channel/Tracking Down,
Clear/Reset, Memory,
Volume/Control Up,
Volume/Control Down,
Rew, Play, F. Fwd,
Pause/Still, Timer set,
Stop, Record
(LED)
Stand by (Green),
Rec (Red),
Timer rec (Red)</p> <p>D) Indicators</p> <p>E) Mechanical</p> <p>1) Dimensions: 362(W)X366(D)X399(H)
mm</p> <p>2) Cabinet: All plastic cabinet</p> <p>3) CRT cover: Acrylic mold</p> <p>4) Weight: 14.0Kg</p> <p>5) Packing weight: 15.5Kg</p> <p>F) Power supply</p> <p>1) Rating requirement: AC 220V (50Hz)</p> <p>2) Consumption: 75W</p> <p>G) Miscellaneous</p> <p>1) Head life time: 1000H (Change tape at
every 200H)</p> <p>2) Safety Regulations: IEC-65 passable</p> <p>H) Accessories.</p> <p>1) Remote control unit</p> <p>2) Battery "R03" X 2</p> <p>3) Monopole antenna for VHF/UHF</p> <p>3) AC cord set (with IEC type A plug)</p> <p>4) Owner's manual</p> |
|---|--|

PERFORMANCE SPECIFICATIONS

* Test input terminal Video input (1Vp-p)
 Audio input (-10dBs)

<TUNER>

Description	Condition	Unit	Nominal	Limit
1. Channel CCIR ch / OIRT ch	VHF Low	CH	E2-E4/R1-R5	—
	VHF High	CH	E5-E12/R6-R12	—
	UHF	CH	21-69	—
2. Intermediate freq.	Picture	MHz	38.0	—
	Sound	MHz	32.5/31.5	—
3. Video S/N	(E10 ch)	dB	44	38
4. Audio S/N (W/LPF)	(E10 ch)	dB	45	38

<DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Deflection frequency	Horizontal			
	(PAL/SECAM)	KHz	15.625	—
	(NTSC)	KHz	15.734	—
	Vertical			
	(PAL/SECAM)	Hz	50	—
	(NTSC)	Hz	60	—
2. Over Scan	—	%	90	—
3. Linearity	Horizontal	%	—	10
	Vertical	%	—	7
4. High Voltage	—	KV	22	—

<VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	m/m	—	0.3
	Corner	m/m	—	1.5
	Side	m/m	—	1.2
2. Contrast Control Range	—	dB	6	4
3. Brightness	APL 100%	ft-L	55	40
4. Color Temperature	—	°K	8000-10MPCD	—
5. Resolution	Horizontal	Line	300	280
	Vertical	Line	300	270

<AUDIO>

All items are measured across 8Ω speaker output terminal.

Description	Condition	Unit	Nominal	Limit
1. Audio Max. Output	—	W	0.9	0.7
2. Audio S/N (W/LPF)	500mW	dB	45	38
3. Audio Distortion (W/LPF)	500mW	%	3	5
4. Audio Freq. Response (W/LPF)	50mW	200Hz dB	-3	-7
	-20dBs in	6KHz dB	+2	-5

<VCR>

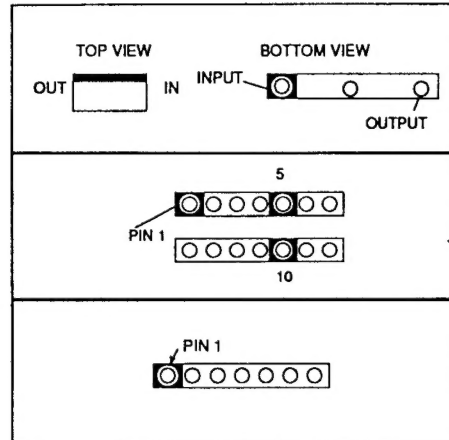
Description	Condition	Unit	Nominal	Limit
1. Horizontal Resolution	F6M	Line	230	220
2. Audio S/N ratio	F6A	dB	40	35
3. Wow & Flutter WRMS/CCIR	F6L	%	0.3	0.5
4. Jitter	F6N	μS	0.07	0.25
5. Audio S/N ratio	R/P	dB	41	37
6. Audio Freq. resp.	200Hz	dB	-3.6	±8
	6KHz	dB	+2.2	±8

Note: Nominal specifications represent the design specifications. All units should be able to approximate these-some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable; in no case should a unit fail to meet limit specifications.

STANDARD NOTES FOR SERVICING

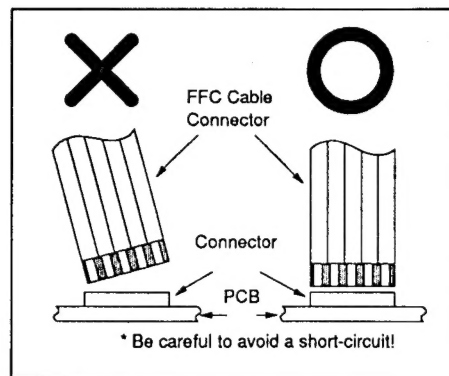
Circuit Board Indications

- The output pin of the 3 pin Regulator ICs is indicated as shown:
- For other ICs, pin 1 and every fifth pin are indicated as shown:
- The 1st pin of every pin connector are indicated as follows:



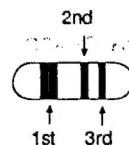
Instructions for Connectors

- When you connect or disconnect FFC (Flexible Foil Connector) cable (connector), be sure to disconnect the AC cord.
- FFC cable (connector) should be inserted parallel into the connector, not at an angle.



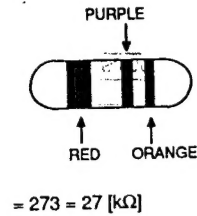
How to Read the Values of the Cylindrical Type Chip Components

The widest color band must be read first for value.

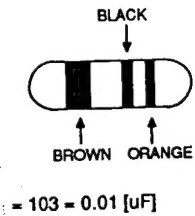


EXAMPLE :

(a) Resistor



(b) Capacitor

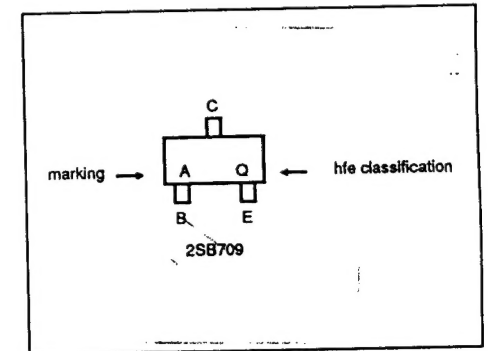


CAUTION:

Once chip parts (Resistors, Capacitors, Transistors, etc.) are removed, they must not be reused. Always use a new part.

How to Read the Identification Mark of Chip Transistors in this Unit.

MARKING	PART NO.
A	2SB709
U	2SC2404
Y	2SD601
1D	2SD1328
25	DTC124EK
26	DTC144EK
2Y	2SC3757
6C	UN2113
8B	UN2212
8C	UN2213



Replacement Procedures for Leadless (Chip) Components

The Following Procedures are Recommended for the Replacement of the Leadless Components Used in this Unit.

1. Preparation for replacement

- Soldering Iron**
Use a pencil-type soldering iron (less than 30 watts).
- Solder**
Eutectic solder (Tin 63%, Lead 37%) is recommended.
- Soldering time**
Do not apply heat for more than 4 seconds.

d. Preheating

Leadless capacitor must be preheated before installation.
(130 °C-150 °C, for about two minutes.)

Note:

- Leadless components must not be reused after removal.
- Excessive mechanical stress and rubbing for the component electrode must be avoided.

inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a (Δ) on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continu-

Precautions during Servicing

- A.** Parts identified by the (Δ) symbol are critical for safety.
Replace only with part number specified.
- B.** In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.
- C.** Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
- D.** Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers
 - 4) Insulators for transistors.
- E.** When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.
- F.** Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)
- G.** Check that replaced wires do not contact sharp edged or pointed parts.

ously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

- H.** When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.
- I.** Also check areas surrounding repaired locations.
- J.** Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.
- K.** Crimp type wire connector
When replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, in order to prevent shock hazards, perform carefully and precisely the following steps.
Replacement procedure
 - 1) Remove the old connector by cutting the wires at a point close to the connector.
 - Important: Do not re-use a connector (discard it).
 - 2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
 - 3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
 - 4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.
- L.** When connecting or disconnecting the VCR connectors, first, disconnect the AC plug from AC supply socket.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards:

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d) (d')
200 to 240 V	Europe	$\geq 4\text{mm}$ (d)
	Australia	$\geq 6\text{mm}$ (d')

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

2. Leakage Current Test

Confirm specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

Table 2 : Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
200 to 240 V	Europe Australia	2k Ω RES. in connected	$\leq 0.7\text{mA rms}$ $\leq 2\text{mA dc}$	Antenna terminals
		50k Ω RES. in connected	$\leq 0.7\text{mA rms}$ $\leq 2\text{mA dc}$	Other terminals

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

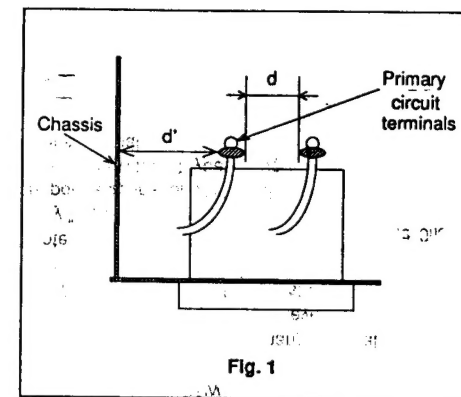


Fig. 1

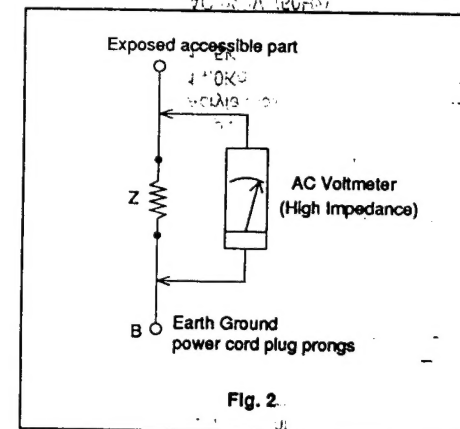


Fig. 2

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for TV Circuit

1. Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

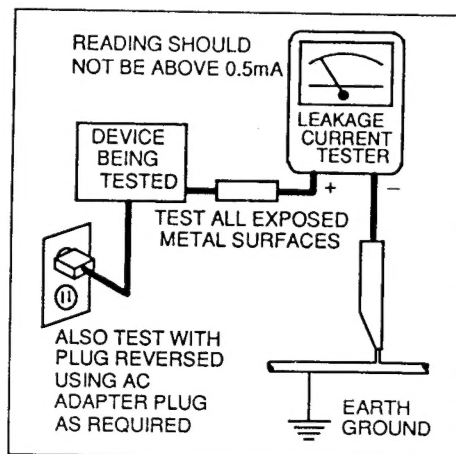
a. Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**

b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.

c. **Antenna Cold Check** - With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer.

Repeat this test with the instrument AC switch in the off position.

d. **Leakage Current Hot Check** - With the instrument completely reassembled, plug the AC line cord directly into a AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester. With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milliampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

e. **X-Radiation and High Voltage Limits** - Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servicing is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

3. **Design Alteration Warning** - Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning** - The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle

the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.

5. Hot Chassis Warning -

a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and may be safely-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, **remove and reinsert the AC power plug in the opposite polarity** and again measure the voltage potential between the chassis and a known earth ground.

b. Some TV receiver chassis have a circuit which obtain voltage about 70% of AC voltage between chassis and earth ground regardless of the AC plug polarity. This chassis can be safely-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.

c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.

Note: * In case unit has no polarity AC plug only.

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **Product Safety Notice** - Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual

2. Removing the leadless component

Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes has melted, remove leadless component with a twisting motion.

Note:

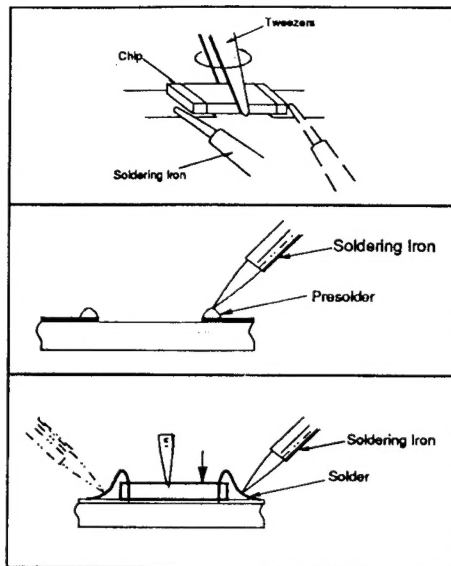
- Do not attempt to lift the component off the board until the component is completely disconnected from the board by the twisting action.
- Take care not to break the copper foil on the printed board.

3. Installing the leadless component

- Presolder the contact points of the circuit board.
- Press the part downward with tweezers and solder both electrodes as shown at right:

Note:

Do not glue the replacement leadless component to the circuit board.



How to Remove / Install Flat Pack IC

1. Removal

With Hot - Air Flat Pack - IC Desoldering Machine:

- Prepare the HOT - AIR FLAT PACK - IC DESOLDERING MACHINE, then apply hot air to Flat Pack - IC (about 5-6 seconds). (Fig. S-1-1)
- Remove the Flat Pack - IC with tweezers while applying the hot air.

Caution:

- Do not supply the hot air to the chip parts around the Flat Pack - IC for over 6 seconds as damage may occur to the chip parts. Put Masking Tape around the Flat Pack - IC to protect other parts from damage. (Fig. S-1-2)
- The Flat Pack - IC on the P.C.B. is affixed with glue, so be careful not to break or damage the foil of each pin or solder lands under the IC when removing it.

With Soldering Iron:

- Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)
- Lift each lead of the Flat Pack - IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air Desoldering Machine. (Fig. S-1-4)

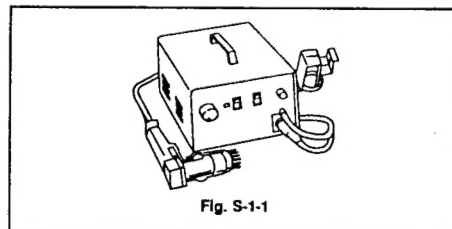


Fig. S-1-1

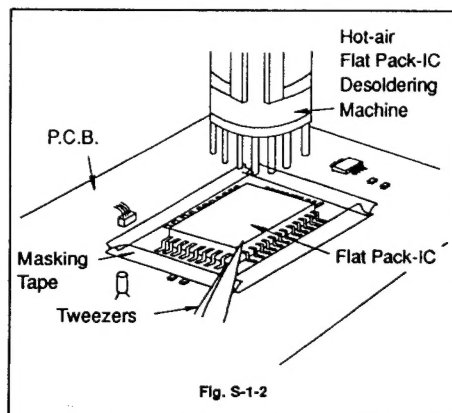


Fig. S-1-2

With Iron Wire:

- Using desoldering braid, remove the solder from all pins of the Flat Pack - IC. When you use solder flux which is applied to all pins of the Flat Pack - IC, you can remove it easily. (Fig. S-1-3)
- Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
- Pull up on the wire as the solder melts so as to lift the IC leads from the P.C.B. contact pads, while heating the pins using a fine Tip soldering iron or hot air blower.

Note:

When using a soldering iron, care must be taken to ensure that the Flat Pack - IC is not being held by glue, or when it is removed from the P.C.B., it may be damaged if force is used.

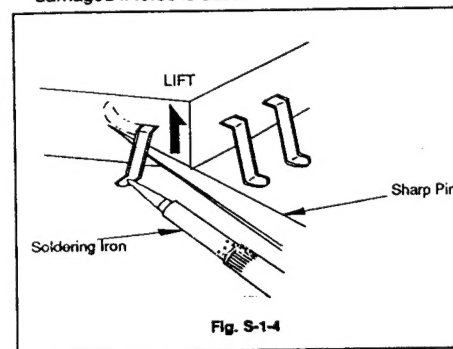


Fig. S-1-4

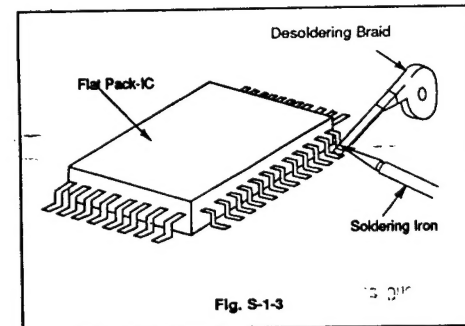


Fig. S-1-3

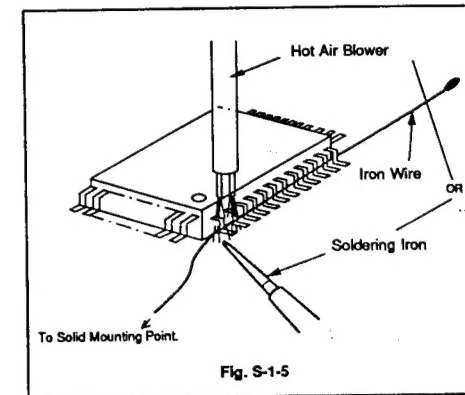


Fig. S-1-5

2. Installation

- Using desoldering braid, remove the solder from the foil of each pin of the Flat Pack - IC on the P.C.B., so you can install a replacement Flat Pack - IC more easily.
- The "●" mark on the Flat Pack - IC indicates pin 1 (See Fig. S-1-6). Make sure this mark matches the 1

Example:

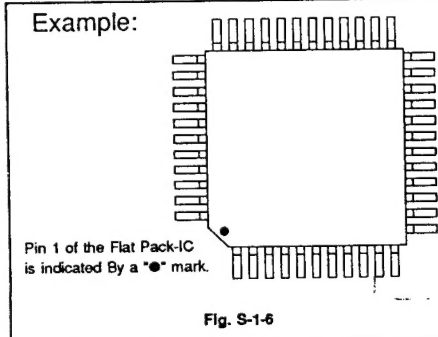


Fig. S-1-6

- Solder all pins of the Flat Pack - IC. Make sure that none of the pins have solder bridges.

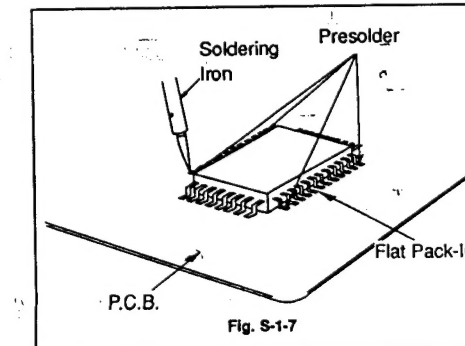
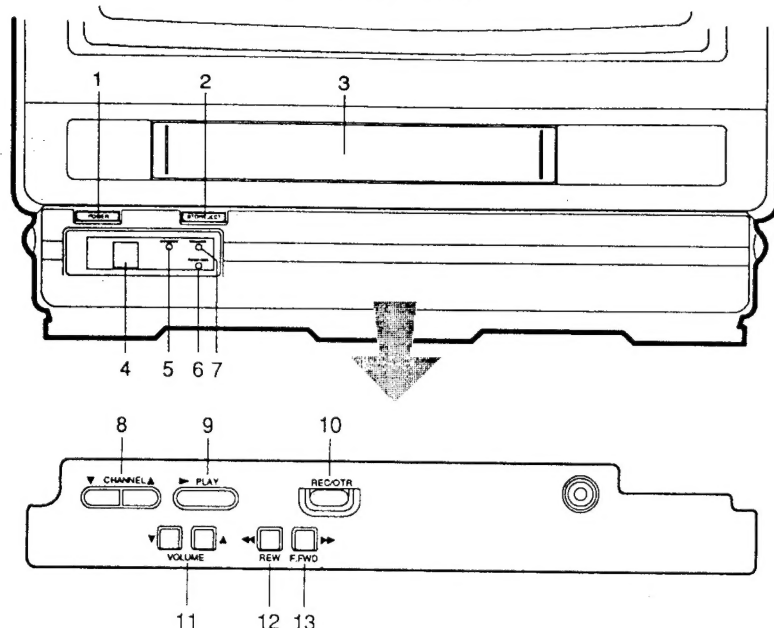


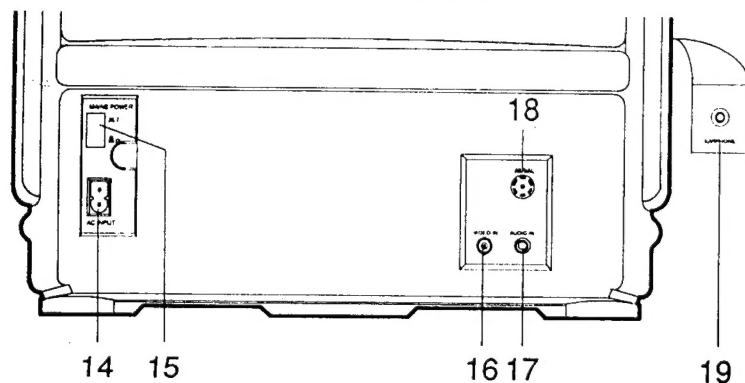
Fig. S-1-7

OPERATING CONTROLS AND FUNCTIONS

— FRONT VIEW —



— REAR VIEW —



- 1 **POWER button**— To turn the unit on and off.
- 2 **STOP/EJECT button**— To stop tape motion and remove the tape from VCR.
- 3 **CASSETTE COMPARTMENT**
- 4 **REMOTE SENSOR**— Receives the infrared control signals from the handheld remote control unit.
- 5 **STANDBY indicator** - Lights when the AC plug is inserted into the AC outlet and Mains Power switch is ON.
- 6 **TIMER REC indicator** - Lights when in the Timer Recording mode.
- 7 **RECORD indicator** - Lights when in the Recording mode.
- 8 **CHANNEL ▼ / ▲ button**— To select desired channel number by pressing either "▼" or "▲" button. They may also be used to adjust tracking control when tape is in play mode. They can not be used during TIMER RECORDING.
- 9 **PLAY ► button**— To begin playback of a tape.
- 10 **REC/OTR button**— Press to begin manual recording and activate one touch recording mode.
- 11 **VOLUME ▼ / ▲ button**— To adjust the volume level.
- 12 **REW ◀ button**— To rewind tape or to view video in reverse during play mode at a faster than normal speed. Press play button to return VCR to normal playback speed.
- 13 **F.FWD ▶▶ button**— To advance tape faster than normal or to view video, in forward direction, during play mode at a faster than normal speed. Press play button to return VCR to normal playback speed.
- 14 **AC INPUT**— Connect the AC cord.
- 15 **MAINS POWER**— Switches the mains supply on and off. (Set switch ON position at the factory.)
- 16 **VIDEO INPUT jack**— Connect to video output jack of your video camera or another VCR.
- 17 **AUDIO INPUT jack**— Connect to audio output jack of a video camera or another VCR.
- 18 **AERIAL jack**— Connect 75-ohm antenna.
- 19 **EARPHONE jack**— To connect earphones (not supplied) for personal listening. This mutes the speaker.

Cleaning

1. Cleaning of Video Head

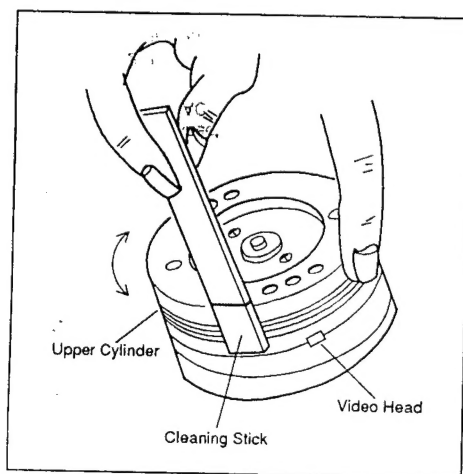
Use a Head Cleaning Stick.

Procedure

1. Remove the top cabinet.
2. Put on a glove (thin type) to avoid touching the upper drum and lower drum with bare hands.
3. Put a few drops of 91% Isopropyl Alcohol on the Head Cleaning Stick, and by slightly placing it against the head tip, allow the upper drum to turn to the right and left.

NOTE:

1. The video head is very hard material, but since it is very thin, avoid cleaning it vertically.
2. Wait for the cleaned part to dry out before operating the unit, or damage will occur.
3. Do not reuse the stained Head Cleaning Stick.



2. Cleaning of Audio Control Head

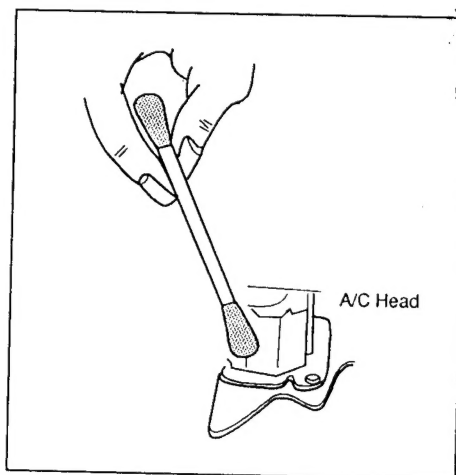
Use a cotton swab.

Procedure

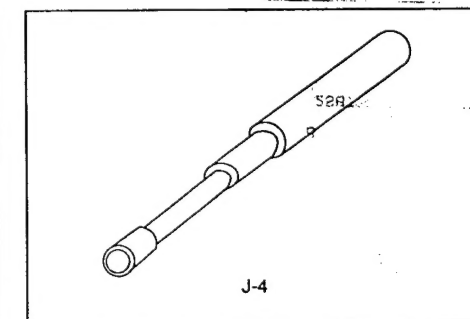
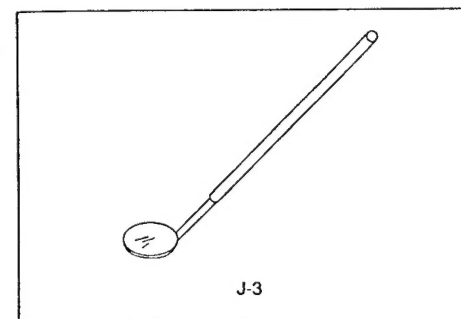
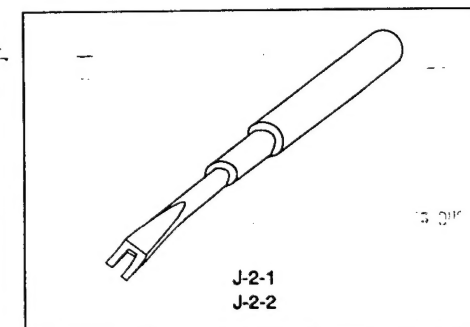
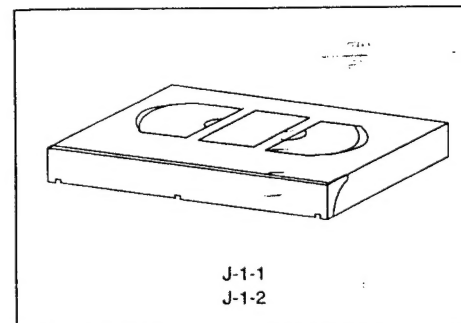
1. Remove the top cabinet.
2. Put a few drops of 91% Isopropyl Alcohol on the cotton swab, and clean up the audio control head, being careful not to damage the upper drum and other tape running parts.

NOTE:

1. Avoid cleaning audio control head vertically.
2. Wait for the cleaned part to dry out, before operating the unit, or damage will occur.



SERVICE FIXTURES AND TOOLS



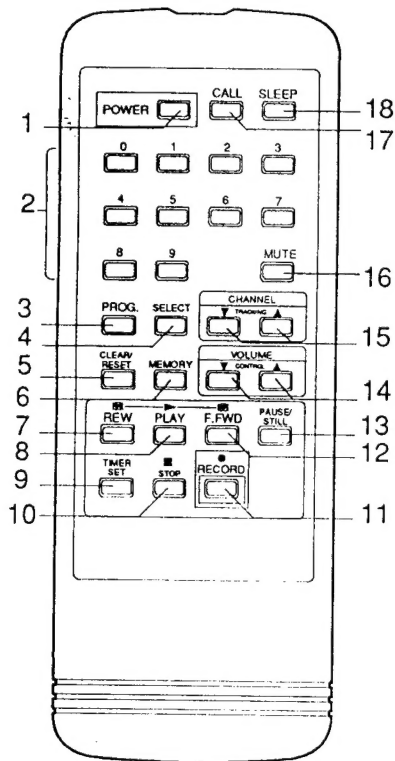
Ref. No.	Name	Adjustment
J-1-1	Alignment Tape (F6-A)	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape (F6-N): 2 Head 1 Speed Model	Azimuth Adjustment of Audio Control Head / X Value / Confirmation / Adjustment of Envelope Waveform
J-2-1	Special Driver Large (FSJ-0001)	X Value
J-2-2	Special Driver Small (FSJ-0006)	Guide Roller *
J-3	Mirror (FSJ-0004)	Tape Transportation Check
J-4	Box Driver, Mx3 (FSJ-0005)	Guide Pole / A/C Head Height

REMOTE CONTROL OPERATION

You can operate most of tape transport functions and TV control functions from the Remote Control (included). The buttons on the Remote Control have the same functions as the corresponding buttons on the unit.

HOW TO USE REMOTE CONTROL

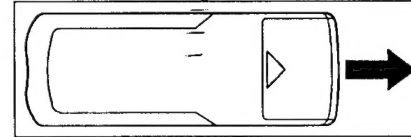
1 POWER button— To turn the unit on and off.



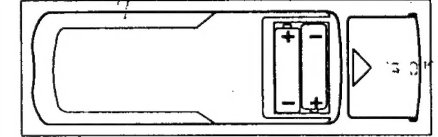
- 2 NUMBER buttons**— To select desired channels and menu. They cannot be used to set desired channel during Timer Recording. To select channels 1 to 9, first press the 0 button and then press desired channel button 1 to 9.
- 3 PROG. button**— To set CLOCK, LANGUAGE SELECT, PRESETTING OF THE CHANNELS, TIMER RECORD PROGRAM and REPEAT MODE.
- 4 SELECT button**— To select setting mode and adjust picture controls.
- 5 CLEAR/RESET button**— To reset counter to 0000. And channel memory delete.
- 6 MEMORY button**— To set counter memory on and off. And channel memory add.
- 7 REW button**— To rewind tape or to view video in reverse during play mode at a faster than normal speed. Press PLAY button to return normal playback speed.
- 8 PLAY button**— To playback the tape.
- 9 TIMER SET button**— To activate the automatic recording timer.
- 10 STOP button**— To stop the tape.
- 11 RECORD button**— To begin recording.
- 12 F.FWD button**— To advance tape, or to view video in forward direction during play mode at a faster than normal speed. Press PLAY button to return normal playback speed.
- 13 PAUSE/STILL button**— To stop the tape, temporarily during playback or recording. To view a still picture during playback.
- 14 VOLUME/CONTROL buttons**— To adjust desired volume level by pressing either "▼" or "▲" button. They may also be used to adjust the picture control.
- 15 CHANNEL/TRACKING buttons**— To select desired channel number by pressing either "▼" or "▲" button. They may also be used to adjust tracking control when tape is in play mode. They can not be used during TIMER RECORDING.
- 16 MUTE button**— To mute sound. Press again to resume sound.
- 17 CALL button**— To call channel display, counter number, and the current time on the screen.
- 18 SLEEP button**— To activate the sleep function.

INSTALLING THE BATTERIES

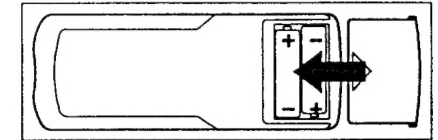
- 1** Slide the battery compartment cover on the remote unit in the direction of the arrow.



- 2** Insert 2 "R03" penlight batteries into the battery compartment in the direction as indicated by the polarity (+/-) markings.



- 3** Replace the cover



Instructions for Handling Semiconductors

Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

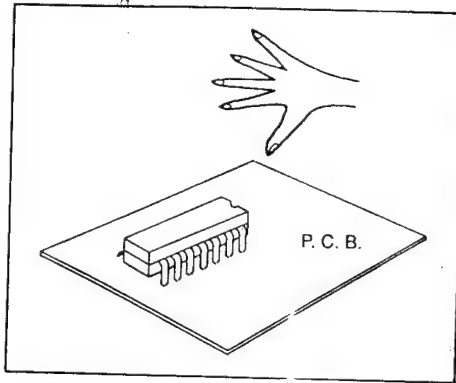
Ground for Human Body

Be sure to wear a grounding band (1M ohm) that is properly grounded to remove any static electricity that may be charged on the body.

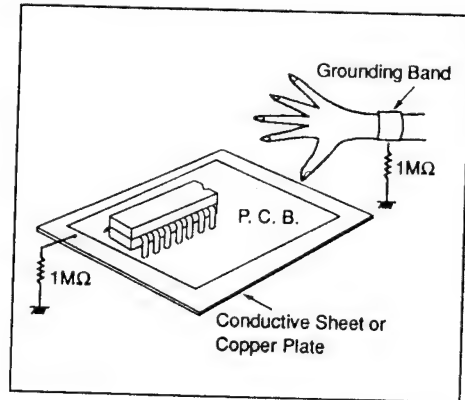
Ground for Work Bench

Be sure to place a conductive sheet or copper plate with proper grounding (1M ohm) on the work bench or other surface, where the semiconductors are to be placed. Because the static electricity charge on the clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors to clothing.

INCORRECT



CORRECT



STANDARD MAINTENANCE

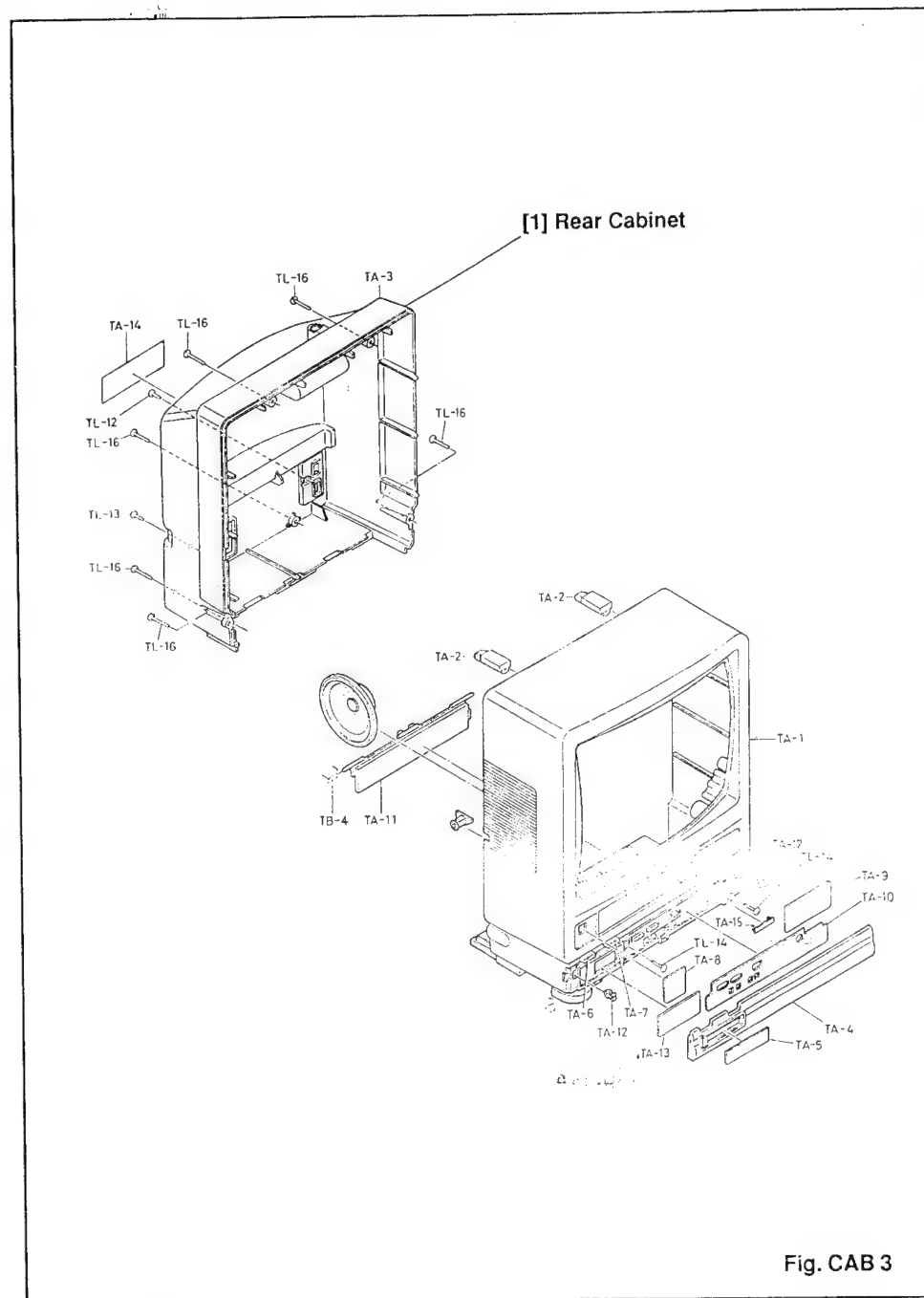
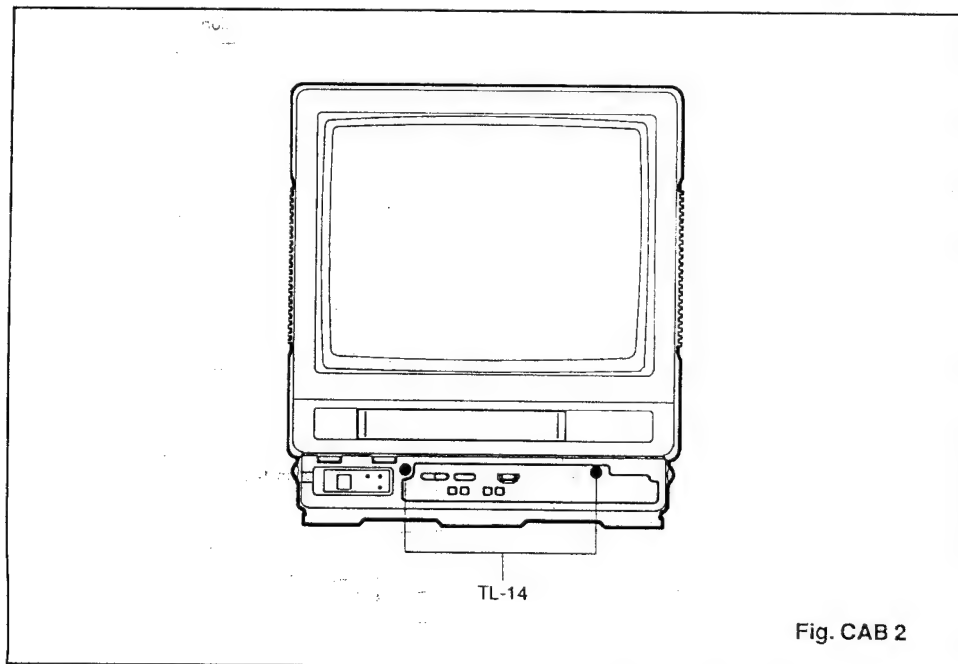
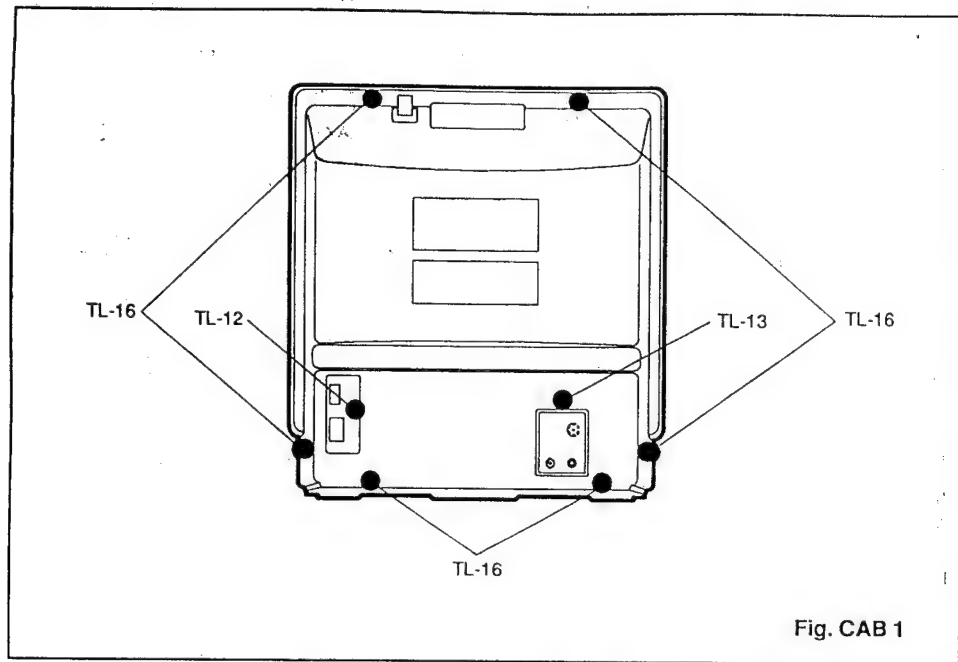
Service Schedule of Components

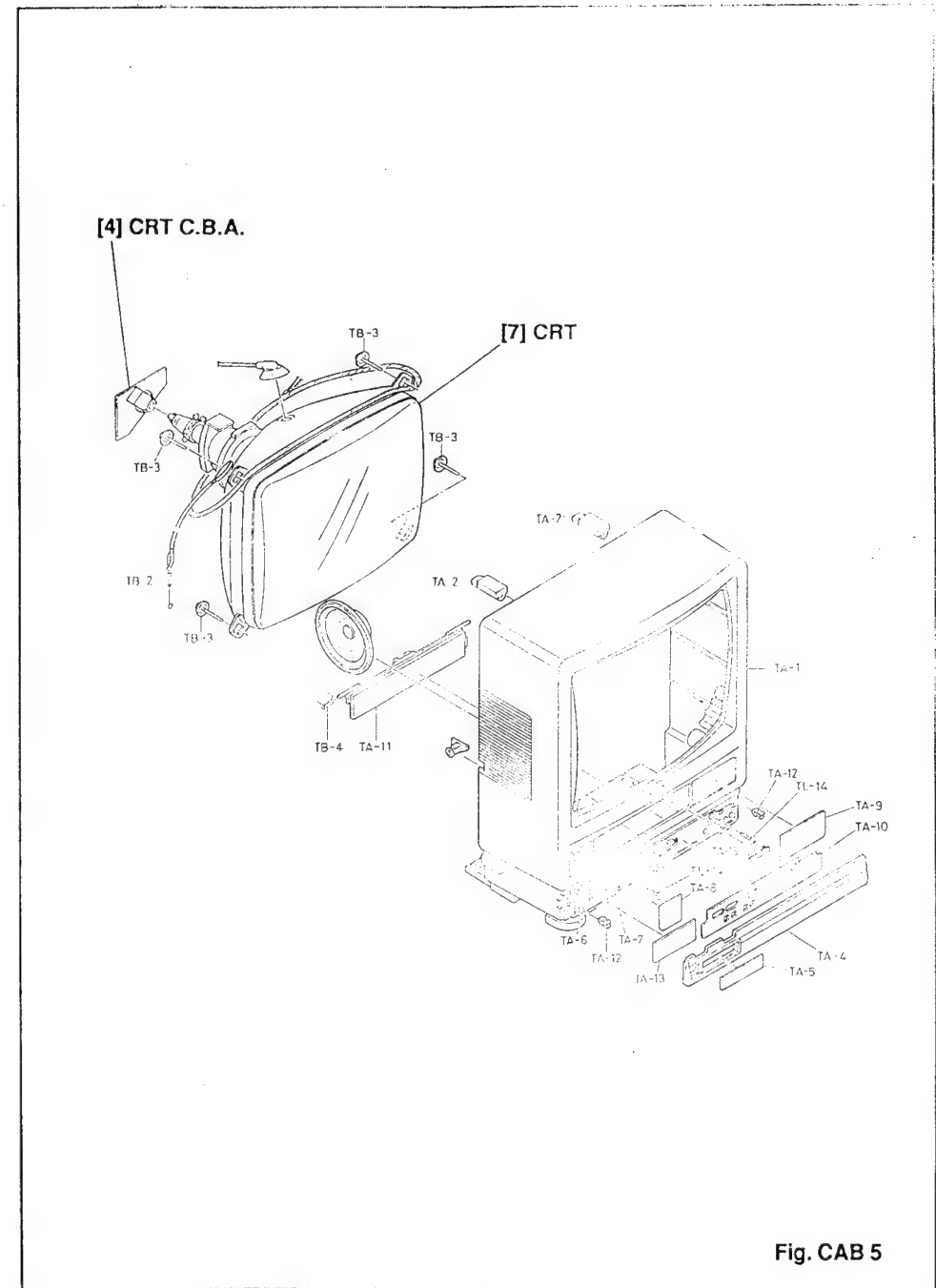
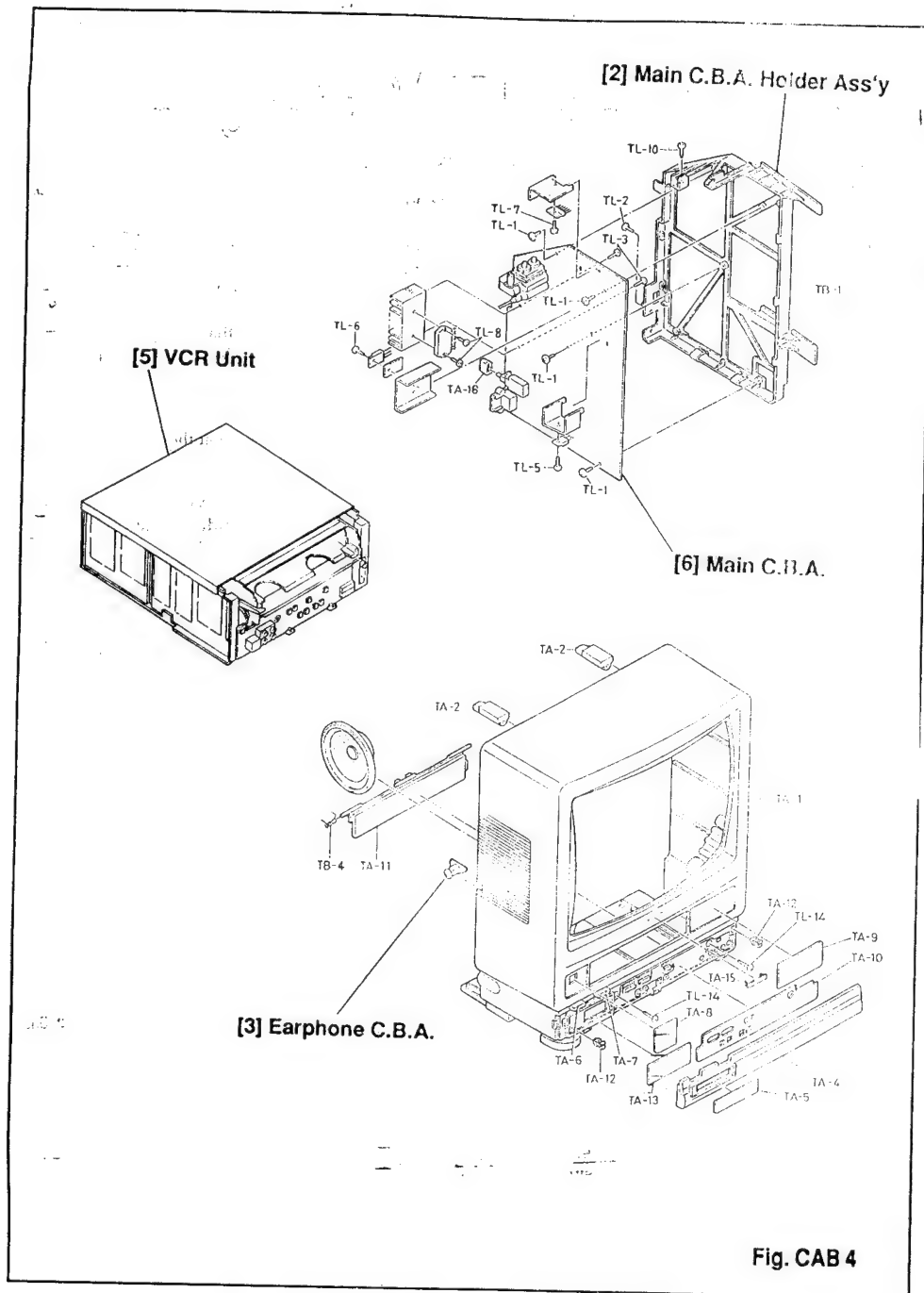
H: Hours O: Check ●: Change

Ref. No.	Deck Parts Name	Periodic Service Schedule			
		1,000 H	2,000 H	3,000 H	4,000 H
2	Upper Drum	○	●	○	●
134	Pinch Roller (A)		●		●
171	Capstan Motor Assembly		●		●
229	Clutch Assembly		●		●
281	LM Assembly (Loading Motor)			●	
173	Main Belt		●		●
196	Back Tension Band		●		●
233	Drive Belt		●		●
251	Brake Shoe		●		●
285	Loading Belt		●		●
373	Front Loading Belt		●		●
14, 19	Drum Ground			●	
82	ACE Head (Play only model: AC Head)			●	
* 92	Full Erase Head			●	
121	Reel Assembly			●	

Note:

1. Clean all parts for the tape transport (Upper Drum with video head / Pinch Roller / Audio Control Head / Full Erase Head) using 91% Isopropyl Alcohol.
2. After cleaning up the parts, perform all DECK ADJUSTMENTS.
3. All Reference Numbers listed above refer to parts shown on Deck Exploded View.
4. Parts marked * are used in Rec/Play model only.





NOTE: All C.B.A.s are drawn as installed in the cabinet.

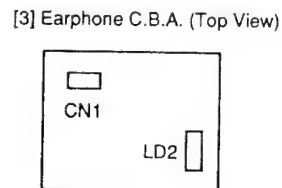
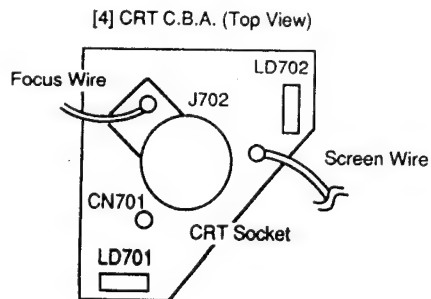
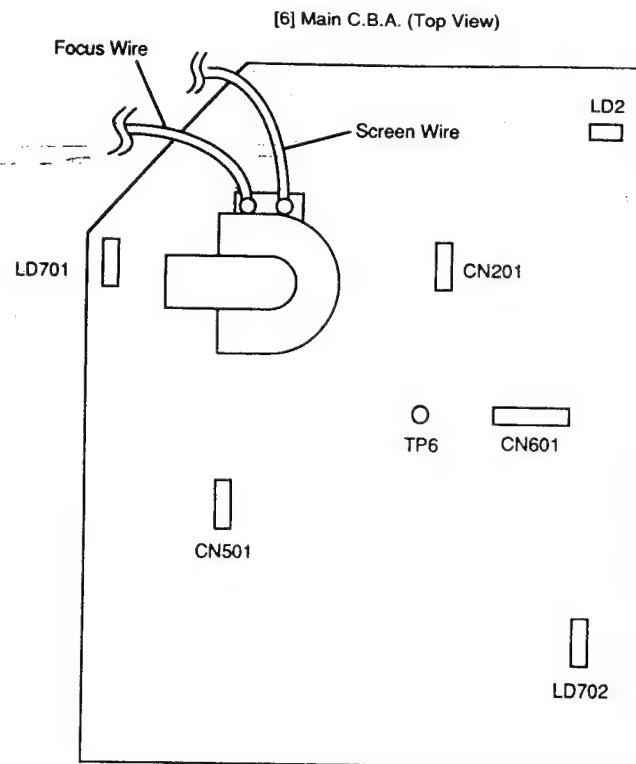


Fig. CAB 6

DISASSEMBLY INSTRUCTIONS [VCR]

DISASSEMBLY FLOW CHART

This flow chart indicates the disassembly steps of the cabinet parts, VCR Unit and the P.C. Boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in the reverse order. Bend, route and dress the cables as they were originally.

Note:

Remove VCR Unit from the Cabinet first.

PART	REMOVAL		
	FIG. NO.	REMOVE/UN-LOCK/RELEASE/UNPLUG/UCLAMP/DESOLDER	NOTE
Top Panel	Fig. 1	2(S-1)	1
Head Amp/Audio/ Syscon C.B.A.	Fig. 2 Fig. 3	2(L-1), (CN3501, CN3502, CN3503, CN3504, CL4001, CL4002, CN4003)	2
Deck Ass'y	Fig. 4	3(S-2), (CN2001), (CN6004)	3
Control Ass'y	Fig. 5	6(L-2), (CN5501)	4
Main C.B.A.	Fig. 6	5(L-3), (S-2)	5

Reference <Notes> in Table

1. Remove 2 Screws(S-1).
2. Disconnect the Connectors (CN3501, CN3502, CN3503, CN3504, CN4003), releasing 2 Locking Tabs (L-1). Then disconnect the remaining 2 Connectors (CL4001, CL4002).
3. Remove 3 Screws(S-2). Disconnect the 2 Connectors (CN2001), (CN6004).
4. Release 6 Locking Tabs(L-2). Disconnect the connector (CN5501).
5. Release 5 Locking Tabs(L-3). Remove Screw (S-2).

DISASSEMBLY INSTRUCTIONS [TV]

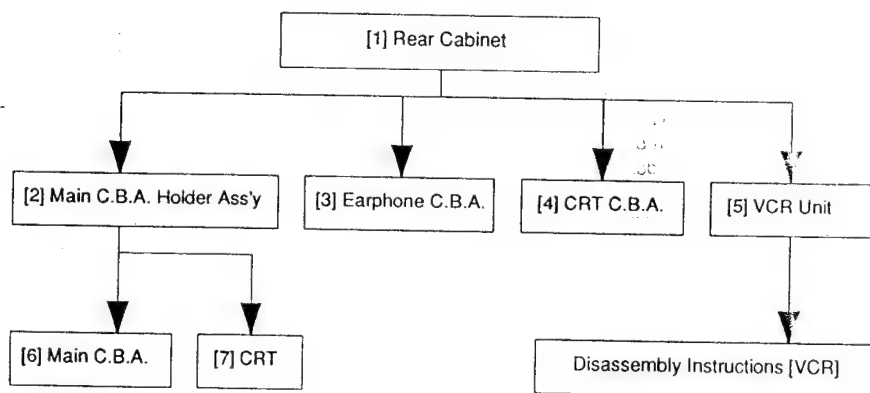
General Note: "C.B.A." is abbreviation for "Printed Circuit Board Assembly".

1. DISASSEMBLY FLOW CHART

This flow chart indicates the disassembly steps of the cabinet parts, VCR Unit and the C.B.A. in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in the reverse order. Bend, route and dress the cables as they were originally.

Caution !

When removing the CRT, make sure to discharge Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.



2. DISASSEMBLY METHOD

STEP / LOC. NO.	PART	REMOVAL		
		FIG. NO.	REMOVE / *UNLOCK / RELEASE / UNPLUG / UNCLAMP / DESOLDER	NOTE
[1]	Rear Cabinet	CAB1 CAB3	6 (TL-16), (TL-12), (TL-13)	1
[2]	Main C.B.A. Holder Ass'y	CAB4 CAB6	(CN201), (CN501), (CN601), (LD2), (LD701), (LD702), (TP6), (Anode Cap), (Focus Wire), (Screen Wire)	2
[3]	Earphone C.B.A.	CAB4 CAB6	(CN1), (LD2)	3
[4]	CRT C.B.A.	CAB5 CAB6	(CN701), (J702), (LD701), (LD702), (Focus Wire), (Screen Wire)	4
[5]	VCR Unit	CAB2 CAB4 CAB6	2 (TL-14), (CN601)	5
[6]	Main C.B.A.	CAB4	4 (TL-1), (TL-2), (TL-10)	6
[7]	CRT	CAB5	4 (TB-3)	7

Reference <Notes> in Table

- 1) Remove 6 screws (TL-16), screw (TL-12) and screw (TL-13) and then slide the Rear Cabinet backward.
- 1) If not already removed, first remove the Rear Cabinet.
2) Remove all relative wires on the Main C.B.A. (located right side in the cabinet), and remove the Anode Cap, then slide the main C.B.A. Holder Ass'y backward.

Caution !

Discharge Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

- 1) If not already removed, first remove the Rear Cabinet.
2) Remove 2 connectors on the Earphone C.B.A., then slide the C.B.A. backward.

Note : When re-installing, set Earphone jack (EP1) side below.

- 1) If not already removed, first remove the Rear Cabinet.
2) Remove all relative wires, then pull the CRT C.B.A. backward.
- 1) If not already removed, first remove the Rear Cabinet.
2) Remove 2 screws (TL-14) inside the Control Door, and remove connector on the Main C.B.A., then slide the VCR Unit backward.
- 1) If not already removed, first remove the Rear Cabinet.
2) Remove the Main C.B.A. Holder Ass'y.
3) Remove 4 screws (TL-1), screw (TL-2) and screw (TL-10) first, release 6 hooks next, then Main C.B.A. can be removed.
- 1) If not already removed, first remove the Rear Cabinet and Main C.B.A. Holder Ass'y.
2) Remove 4 screws (TB-3), then the CRT can be removed.

BOTTOM VIEW

<REAR SIDE>

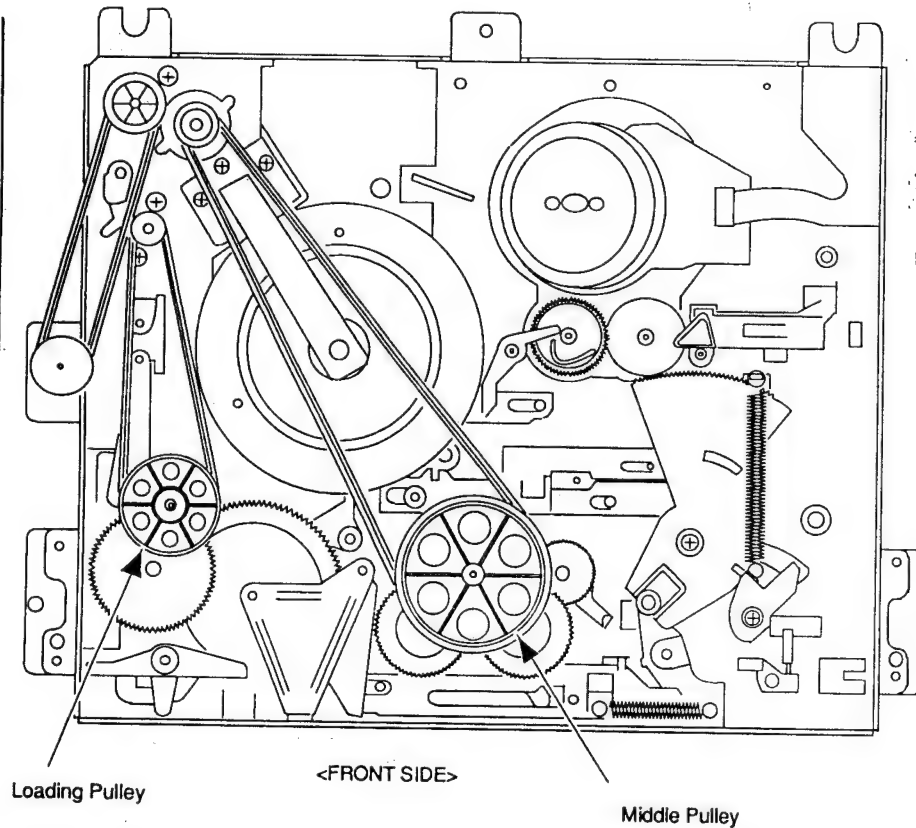


Fig. MA-M2

1. TAPE INTERCHANGEABILITY ADJUSTMENT (FINAL ADJUSTMENT)

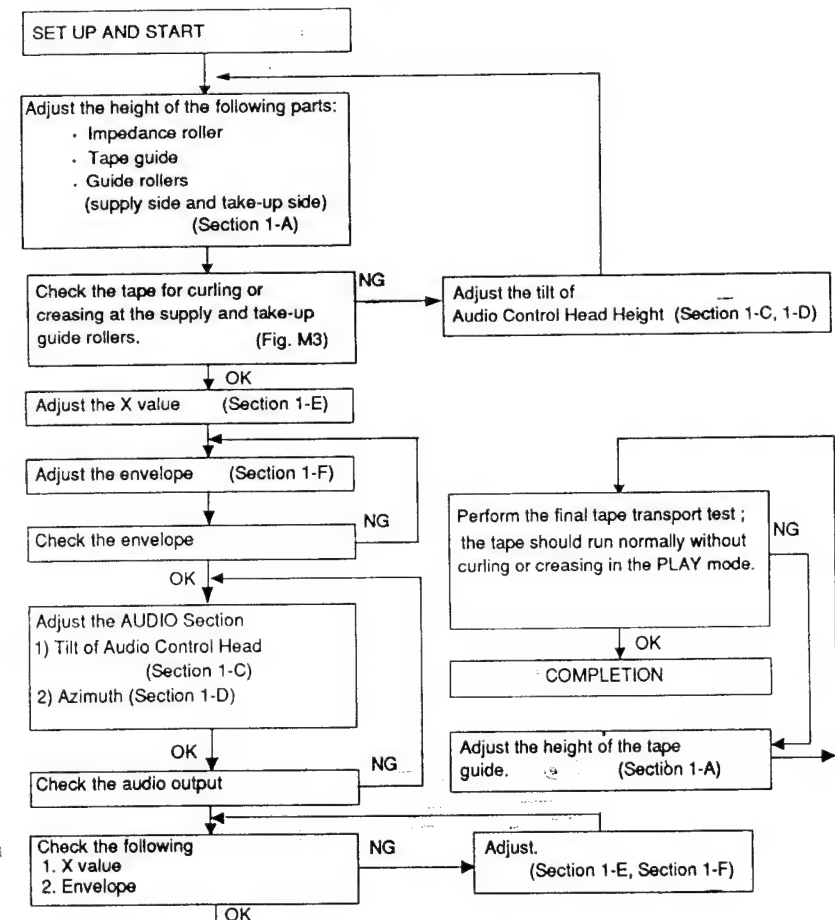
NOTE:

To perform these adjustment procedures, make sure that the Tracking Control is set in the neutral position.
(Press the channel up and down buttons of the unit together during PLAY mode.)

Equipment required:

Dual Trace Oscilloscope
Alignment Tape (F6-A, F6-N)
Special Driver Large (FSJ-0001)
Special Driver Small (FSJ-0006)
Mirror (FSJ-0004)
Box Driver, Mx3 (FSJ-0005)

Tape Transport Adjustment Flow Chart



Note: Before attempting these mechanical adjustments, you must complete the ELECTRICAL ALIGNMENT INSTRUCTIONS.

1-A. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING POSITION

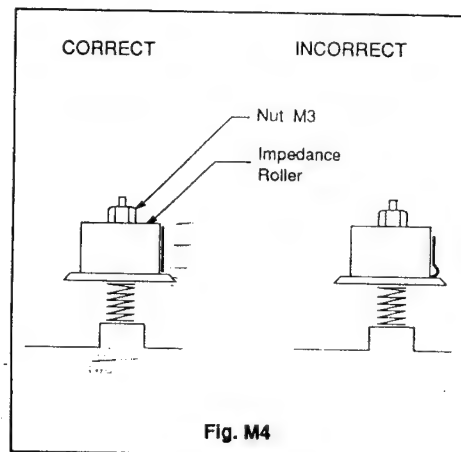
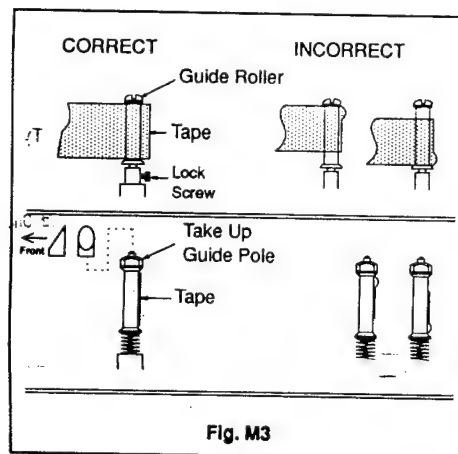
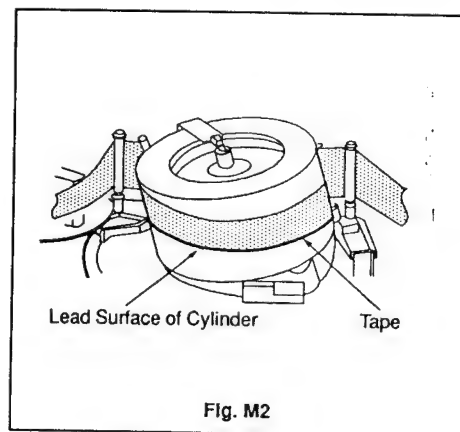
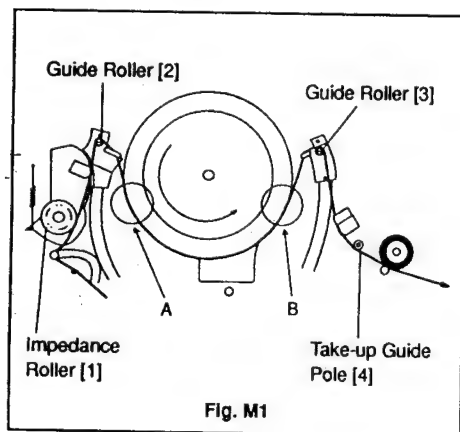
Purpose:

To make sure that the tape running is well stabilized.

Symptom of Misadjustment:

If the tape runs with instability, the tape will be damaged.

1. Play back a cassette tape and confirm that the tape runs without curling or creasing at the guide rollers [2] and [3] and at points A and B on the lead surface. (Refer to Fig. M1 and M2)
2. If curling or creasing is apparent, adjust the height of guide rollers by turning the top of guide rollers [2] and [3] with the Special Driver Small. (Refer to Fig. M1 and M3)
3. Confirm that the tape runs without curling or creasing at the lower flange of Impedance Roller. If curling or creasing is apparent, adjust the height of Impedance Roller in both PLAY and REV modes by turning the Nut M3 with BOX DRIVER M3. (Refer to Fig. M4)



1-B. CONFIRMATION OF AUDIO CONTROL HEAD HEIGHT

Purpose:

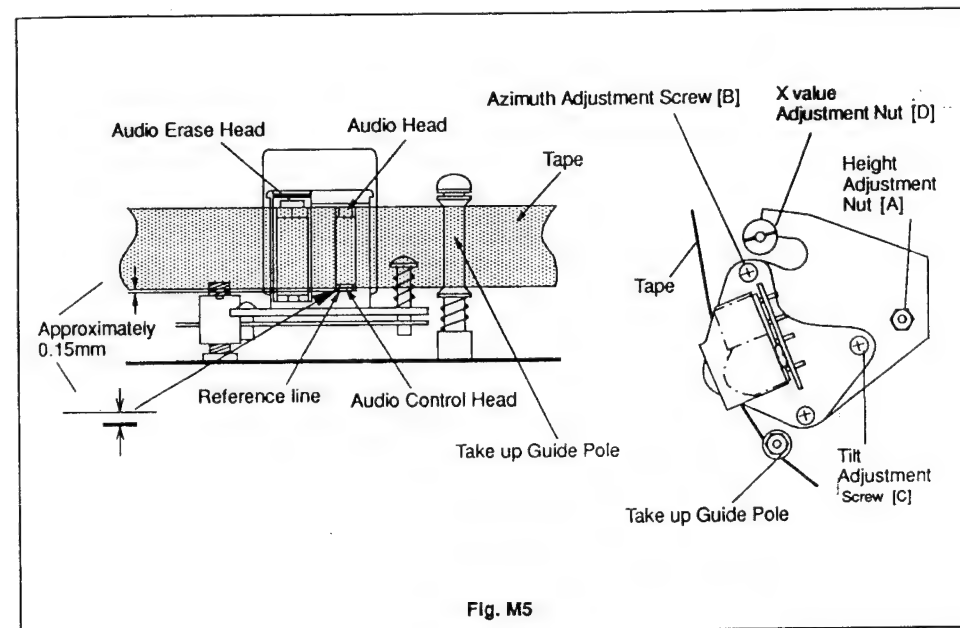
To make sure that the tape runs properly along the Control Head.

Symptom of Misadjustment:

If the control signal is not properly picked up, Servo Operation can not be achieved.

This confirmation is required for a preliminary height adjustment after replacing the Audio control Head. For final adjustments, perform items 1-C and 1-D.

1. Play back a cassette tape. Looking at the lower edge of the Control Head with the tape in motion, ensure that the lower edge of the tape runs 0.15mm above the lower edge of the Control Head. If it doesn't, turn Height Adjustment Nut [A] slightly in either direction as necessary to correct it. Turn clockwise to lower the head and counter clockwise to raise it. (Refer to Fig. M5)



1-C. CONFIRMATION OF TILT OF AUDIO CONTROL HEAD

Purpose:

To confirm that the tape running is well stabilized. In particular, confirm that tape properly picks up the Audio Signal at the upper part and Control Signal at the lower part.

Symptom of Misadjustment:

If the tilt of the Audio Control Head is poorly adjusted, the tape will be eventually damaged.

Play back a cassette tape and confirm that the tape running between Take-up Guide Pole [4] in Fig.M1 and Audio Control Head has no slack. If the tape has slack, adjust the Control Head by turning tilt adjustment screw [C] in Fig. M5 so that the tape has no slack.

1-D. HEIGHT ADJUSTMENT OF AUDIO CONTROL HEAD

Purpose:

To adjust the height of Audio Control Head so that it meets the tape tracks properly.

Symptom of Misadjustment

If the position of Audio Control Head is not properly adjusted, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the Audio output on the rear of the set.
2. Confirm that the tape running between the take up guide roller and the audio control erase head has no slack.
If the tape has slack, take it up by turning the tilt adjustment screw [C]. Then readjust GUIDE ROLLER HEIGHT in section 1-A and the X value in section 1-E.
3. After confirming on the oscilloscope that a 1 kHz audio signal is being output by playing back F6-N test tape, adjust the height adjustment nut [A] so that the AC voltmeter's reading is brought to its maximum level.
4. Adjust the azimuth adjustment screw [B] so that the AC voltmeter's reading is brought to its maximum level.

NOTE: Fix the screw [C] with lock paint after readjustment.

AZIMUTH ADJUSTMENT OF AUDIO CONTROL HEAD

Purpose:

To adjust the height of Audio Control Head so that it meets the tape tracks properly.

Symptom of Misadjustment

If the position of Audio Control Head is not properly adjusted, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the Audio output on the rear of the set.
2. After confirming on the oscilloscope that a 6kHz audio signal is being output by playing back F6-N test tape, adjust the azimuth adjustment screw [B] so that the AC voltmeter's reading or oscilloscope waveform is brought to its maximum level. (Refer to Fig. M6)

NOTE: Fix the screw [C] with lock paint after readjustment.

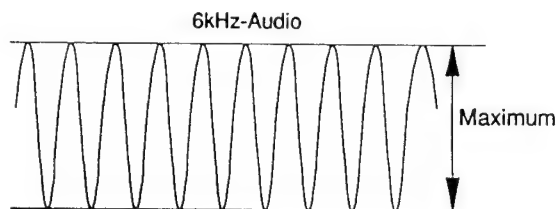


Fig. M6

-E. X VALUE ADJUSTMENT

Purpose:

To adjust the horizontal position of the Audio Control Head.

Symptom of Misadjustment:

If the horizontal position of the Audio Control Head is not properly adjusted, maximum envelope cannot be obtained at the neutral position of the Tracking Control.

1. Set tracking control to the neutral position.
2. Connect the oscilloscope to ENV(C-PB) on the Main PCB. Use RF-SW as a trigger.
3. Play back the monoscope portion of the alignment tape (F6-N) and confirm that the PB FM signal appears.
4. Adjust the X Value Adjustment Nut D in Fig. M7 for maximum PB FM signal.

Note: Press the channel up and down buttons of the unit together during PLAY mode to set the tracking control to neutral position.

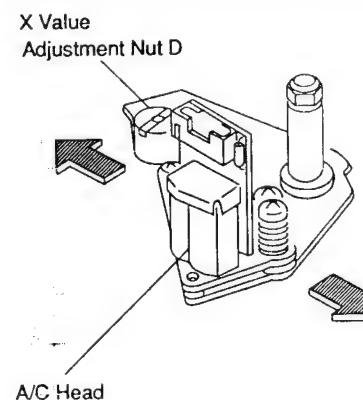


Fig. M7

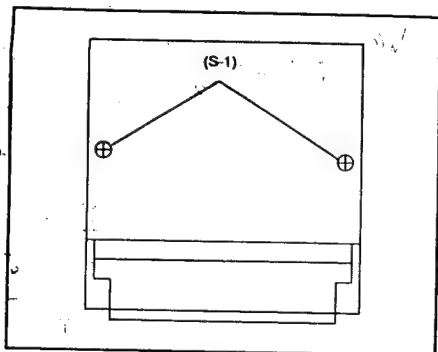


Fig. 1

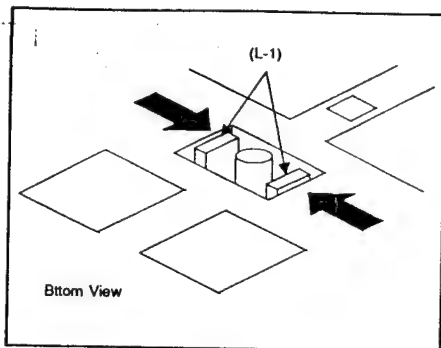


Fig. 2

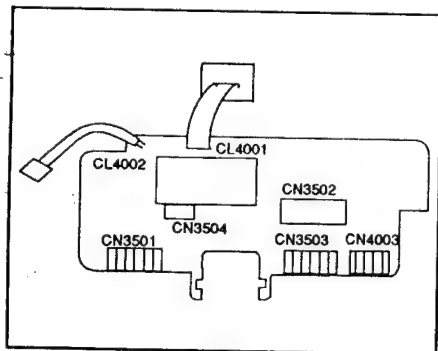


Fig. 3

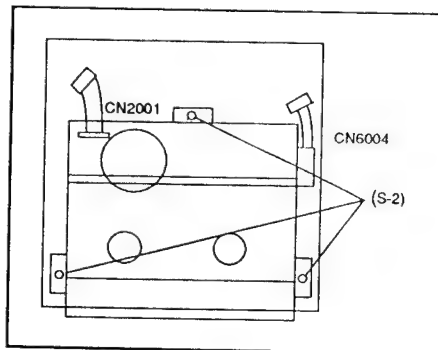


Fig. 4

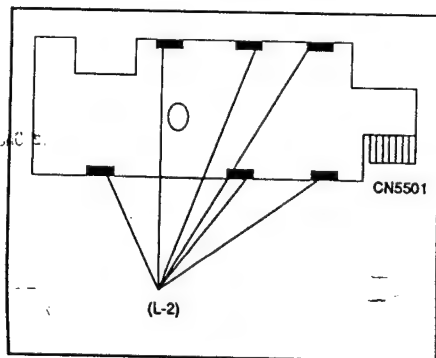


Fig. 5

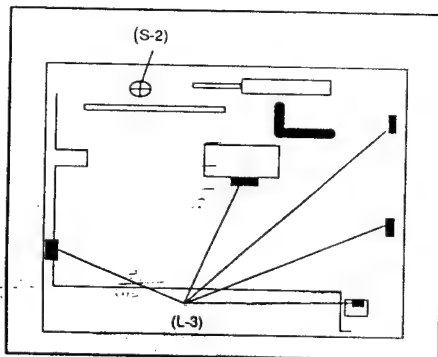


Fig. 6

MECHANICAL ADJUSTMENT PROCEDURES

A. How to set the Mechanism in Tape Loading / Unloading position without Cassette Tape.

To load, turn the Loading Pulley (Fig. MA-M2) Clockwise. To unload, turn the Loading Pulley counterclockwise.

B. How to place the Cassette Holder in the down position without a Cassette Tape.

Use one of the following procedures.

METHOD 1

1. Remove the Top Case and then connect AC Plug.
2. Protect the Start Sensor and End Sensor or LED Sensor by keeping them away from Electrostatic Discharge.
3. Push the Cassette Holder to the Deck Rear Side (in Fig. MA-M1 as shown by the arrow) while pushing the Cassette Lock Plate (L) / (R) (in Fig. MA-M1 as shown by the arrow) to release the lock. The Cassette Holder will move into the down position by itself.

METHOD 2 (MANUAL)

1. Remove the Top Case and Bottom Panel. Then disconnect AC Plug.
2. Turn the Middle Pulley in Fig. MA-M2 clockwise (for down position) while pushing the Cassette Lock Plate (L) / (R) (in Fig. MA-M1 as shown by the arrow) to release the lock. The Cassette Holder may be moved into the down position by turning the Middle Pulley.

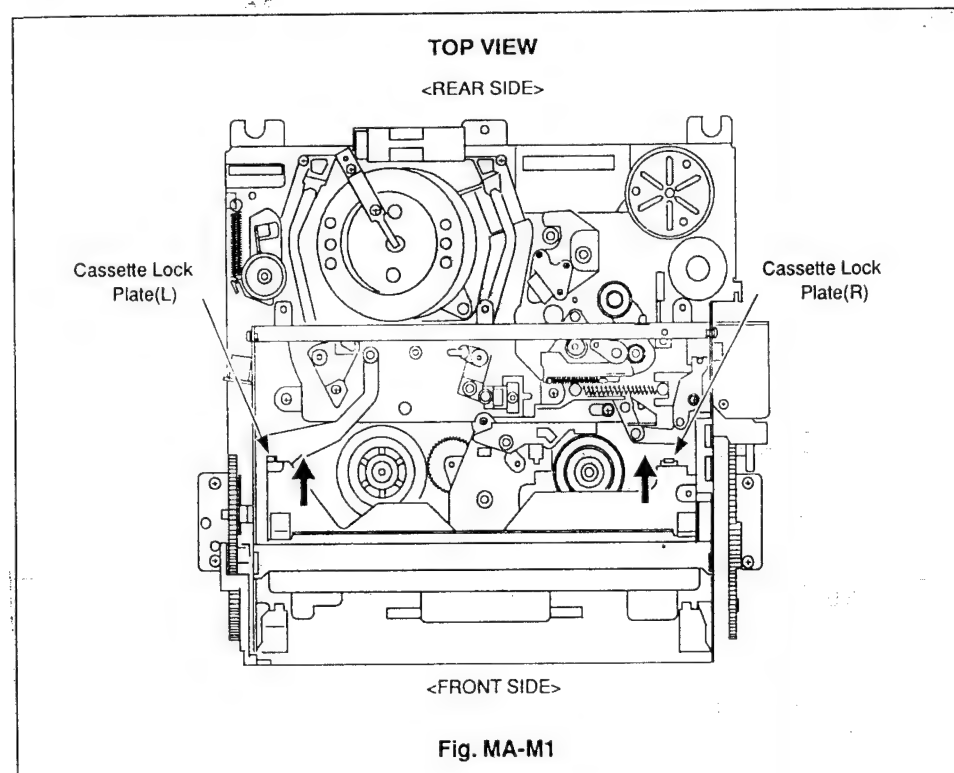


Fig. MA-M1

3. REPLACEMENT OF CYLINDER ASSEMBLY

1. Disconnect the P.C.B Ass'y DM from the stator of DRUM MOTOR.
2. Remove 3 screws (S-3), and then take off the CYLINDER ASSEMBLY.
3. Replace the CYLINDER ASSEMBLY, and tighten 3 screws (S-3).
4. Connect the P.C.B Ass'y DM to the CYLINDER ASSEMBLY. (Refer to Fig. M12)
Upon completion of above procedure, confirm and adjust the following items:
5. Play back Switching Point. (Refer to Electrical Adjustment.)
6. Azimuth (Refer to Mechanical Adjustment Procedures Item 1-D).
7. Audio Output Level. (Refer to Mechanical Adjustment Procedures Item 1-D).
8. X value. (Refer to Alignment Procedure for Mechanism Item 1-E).
9. Envelope Waveform. (Refer to Mechanical Adjustment Procedures Item 1-F).

4. REPLACEMENT OF UPPER DRUM/LOWER DRUM

When reinstalling the Upper, Lower Drums, confirm and adjust the following items:

- Playback switching point (Refer to Electrical Adjustment Instructions).
- Azimuth (Refer to Mechanical Adjustment Procedures Item 1-D).
- Audio output level (Refer to Mechanical Adjustment Procedures Item 1-D).
- X value (Refer to Mechanical Adjustment Procedures Item 1-E).
- Envelope waveform. (Refer to Mechanical Adjustment Procedures Item 1-F).

Note:

Install the Upper Drum so that the Video Head CH-R aligns with the PG Magnet on the side of Drum Motor.

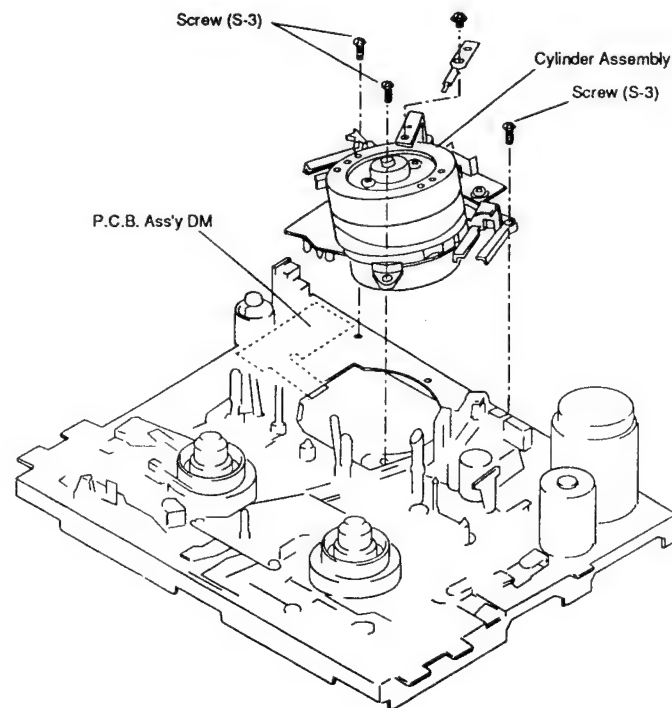


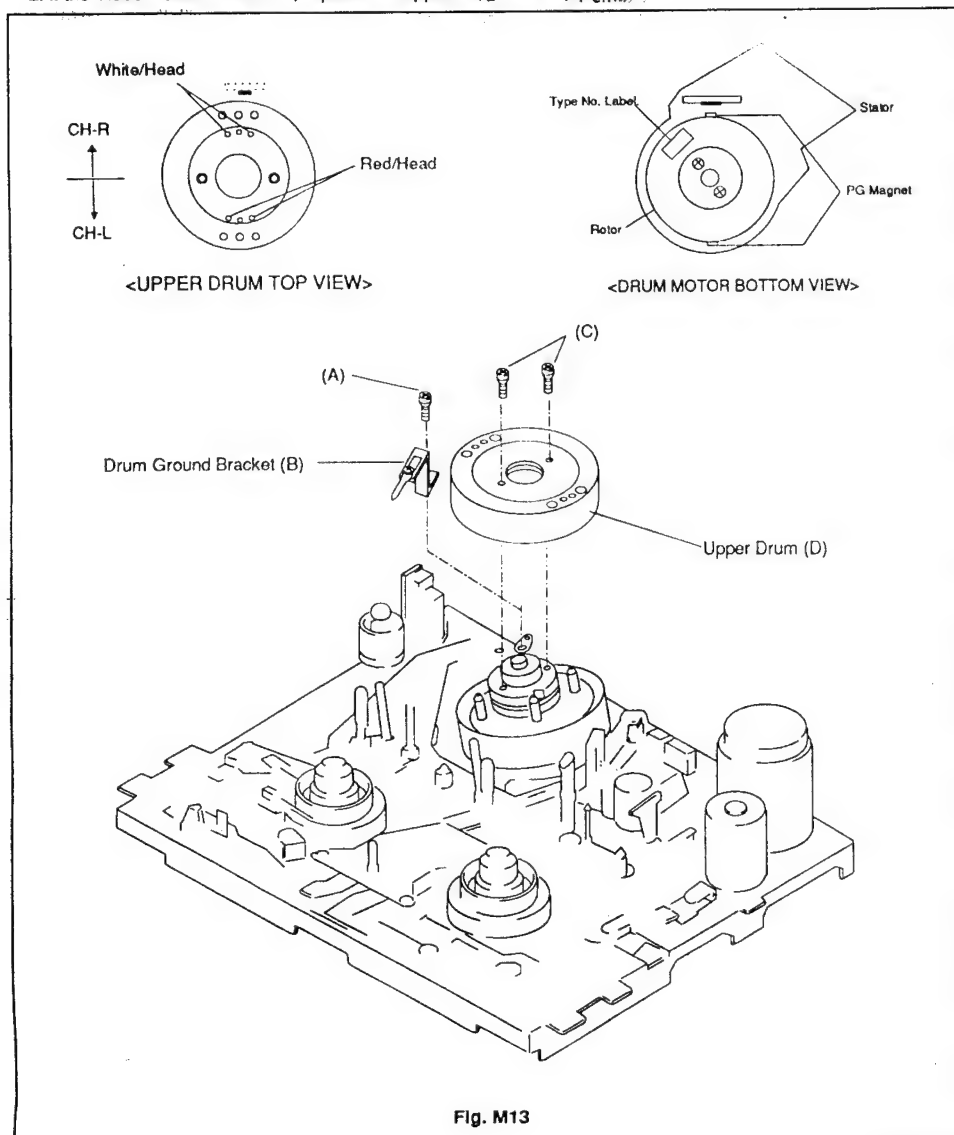
Fig. M12

UPPER DRUM / REINSTALLATION OF UPPER, LOWER DRUMS AND ROTOR

1. Remove the Front Loading Unit.
2. Remove screw (A) and take off the Drum Ground Bracket (B).
3. Remove 2 screws (C) and take off the Upper Drum (D).

NOTE:

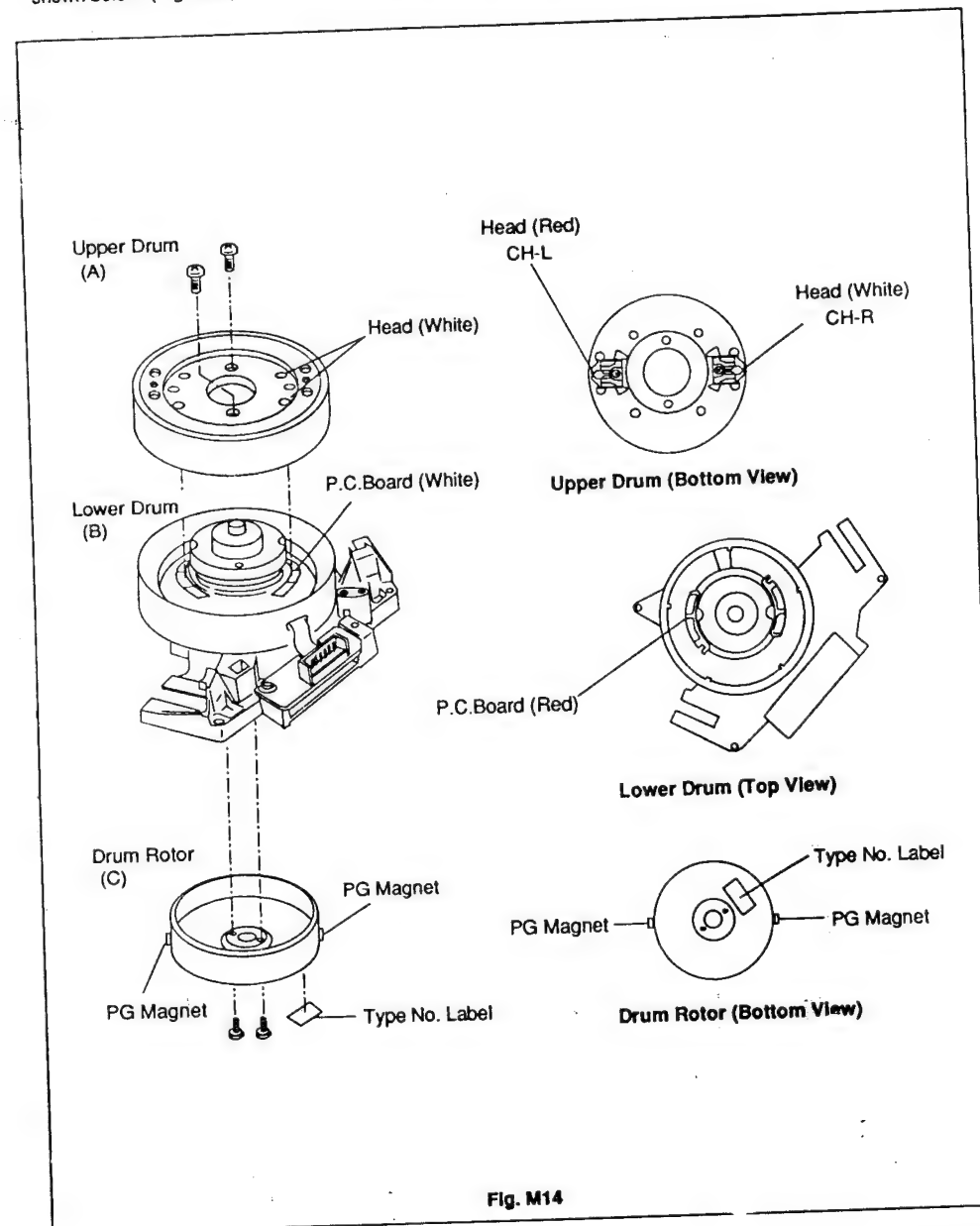
1. Use gloves and do not touch the drum surface with bare fingers.
2. If the Video Head is defective, replace the upper drum with the Head.



K2870DMA

Note:

Upper Drum (A), Lower Drum (B) and Drum Rotor (C) must be assembled so that the white marks are lined up as shown below. (Fig. M14)



K2870DMA

DISASSEMBLY / ASSEMBLY PROCEDURES OF DECK MECHANISM

This procedure starts with the conditions that the Cabinet parts, Cassette Up Unit and Head Amp C.B.A. have been removed. Also, all the following procedures for adjustment and parts replacement should be performed in STOP mode. When reassembling, perform the step(s) in the reverse order.

STEP / LOC. NO.	START -ING NO.	PART	REMOVAL		INSTALLATION
			FIG. NO.	REMOVE / * UNHOOK / UNLOCK / RELEASE / UNPLUG / DESOLDER	
[1]	1	ARM, BACK TENSION	T DM1 DM3	* (P-1), (C-1)	(+) See Setting Condition in Fig. DM3
[2]	1	BAND, BT	T DM1 DM3	(S-1), (K-1), *(P-2)	
[3]	3	SUPPORT, BACK TEN- SION	T DM1	(S-2)	-----
[4]	2, 3	SUPPLY REEL ASSEMBLY	T DM1	-----	(+) -----
[5]	5	CYLINDER UNIT	T DM1	3(S-3), Connections	See Replacement of CYLINDER ASSEMBLY.
[6]	5	LOADING POST (L) UNIT	T DM1	(S-4) Slide to rear to remove	(+) See Alignment Procedure for Mechanism Item 1-A
[7]	5	LOADING POST (R) UNIT	T DM1	(S-5) Slide to rear to remove	
[8]	8	ROLLER (A), PINCH	T DM1	(S-6)	-----
[9]	9	HEAD BASE ASSEMBLY	T DM1 DM4	(N-1), *(P-2)	See Confirmation of Audio / Control Head Height
[10]	10	PULLEY ASSEMBLY, MIDDLE	B DM2	(C-2) DRIVE BELT	-----
[11]	10	REEL DRIVE GEAR AS- SEMBLY	T DM1 DM5	(S-7), 2(S-8)	See Setting Condition in Fig. DM5
[12]	10	GEAR, ASSEMBLY, P	T DM5	-----	
[13]	10	GEAR ASSEMBLY, RF	T DM5	-----	
[14]	10,11, 12	ARM ASSEMBLY, T BRACKET	T DM1 DM6	*(P-3)	See Setting Condition in Fig. DM6
[15]	10,11, 12,13	ARM ASSEMBLY, S BRACKET	T DM1 DM6	*(P-4)	
[16]	16	BRAKE, S SOFT	T DM1 DM6	*(P-5), (C-3)	
[17]	10	BRAKE ACTUATOR UNIT	T DM1 DM7	*(P-6), *(P-7), *(P- 8)	See Setting Condition Fig. DM7
[18]	10	TAKE-UP REEL ASSEM- BLY	T DM1	-----	(+)
[19]	19	PULLEY, LOADING	B DM2 DM8	BELT, LOADING (C-4)	-----
[20]	19	GEAR, LOADING	B DM2 DM8	(C-5)	-----

STEP / LOC. NO.	START -ING NO.	PART	FIG. NO.	REMOVAL	INSTALLATION
				REMOVE / * UNHOOK / UNLOCK / RELEASE / UNPLUG / DESOLDER	ADJUSTMENT CONDITION
[21]	21	PLATE, LOADING, LEVER REINFORCE	B DM2 DM8	2 (S-9)	-----
[22]	19,20	ARM, EJECT ACTUATE	B DM2 DM8	(C-6)	-----
[23]	19, 21	SPOKE, REC ACTUATE	B DM2 DM8	*	-----
[24]	19,20 22	BRAKE, ARM ACTUATE	B DM2 DM8	-----	-----
[25]	21	LEVER SEMI ASSEMBLY LOADING	B DM2 DM8	-----	-----
[26]	19, 21	CAM, LOADING	B DM2 DM8	-----	(+) See Installation proce- dure for Deck Mechanism in Fig. DM2
[27]	27	PLATE, LOADING GEAR	B DM2 DM9	(S-10), (K-2) * (P-9)	(+) See Alignment Procedure for Mechanism in Fig. DM2 See Setting Condition in Fig. DM9
[28]	28	DRUM MOTOR TM-84	B DM2	2(S-11), 3(S-12) *DISCONNECT MYLAR CABLE	See Replacement of DRUM MOTOR TM-84.



Note:

- Order of steps in Procedure
When reassembling, perform the step (s) in the reverse order.
These numbers are also used as the identification (location) number of parts in Figures.
- Start No. followed by corresponding part to be removed at this stage
See example below.
Example : Cassette Load Bracket Assembly can be removed without removing any other parts, but
Worm Wheel Assembly can be removed only after removing Cassette Load Bracket Assembly
(No. ①.)
- Part to be removed or installed
- Location of part
T = TOP VIEW (Fig. DM1) B = BOTTOM VIEW (Fig. DM2)
- Fig. No. showing Procedure or Part Location
- Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or desoldered
P = Spring W = Washer C = Cut Washer R = Retaining Ring
N = Nut S = Screw * = Unhook, unlock, release, unplug or desolder
2 (C-2) = 2 Cut Washers (C-2)
- Adjustment information for installation
(+) : Refer to Exploded Views for Lubrication information.

1-F. CONFIRMATION / ADJUSTMENT OF ENVELOPE WAVEFORM

Purpose:

To achieve a satisfactory picture and secure precise tracking.

Symptom of Misadjustment:

If the envelope output is poor, much noise will appear in the picture. The tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control.

1. Set tracking control to the neutral position.
(Press the channel up and down buttons of the unit together during PLAY mode.)
2. Connect the oscilloscope to ENV(C-PB) on the Main PCB. Use RF-SW as a trigger.
3. Play back the monoscope portion of the alignment tape (F6-N) and adjust the height of guide rollers [2] and [3], watching the scope display so that the envelope becomes as flat as possible.
If adjustment is required, turn top of guide roller with the Post Adjustment Screwdriver.
4. When the scope display is as shown in Fig. M8, adjust the height of [2] so that the waveform looks like Fig. M10.
5. When the scope display is as shown in Fig. M9, adjust the height of [3] so that the waveform looks like Fig. M10.
6. When [2] and [3] are adjusted properly, there is no Envelope Drop at the beginning and end of track as shown in Fig. M10.

NOTE:

After adjustment, confirm the X VALUE by pushing the Tracking Control Up or Down Buttons alternately, to check the symmetry of the envelope. If required, perform "X VALUE ADJUSTMENT".

Dropping envelope level at the beginning of track



Fig. M8

Dropping envelope level at the end of track



Fig. M9

Envelope is adjusted properly (No Envelope Drop)



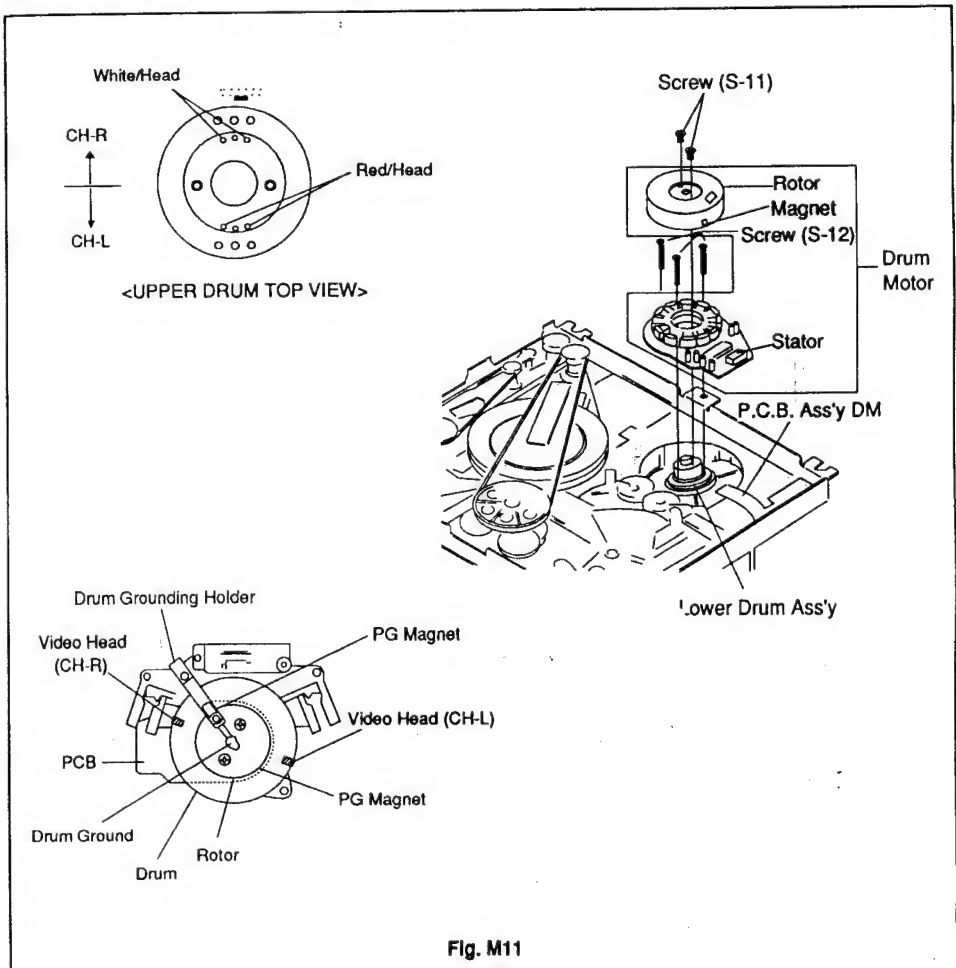
Fig. M10

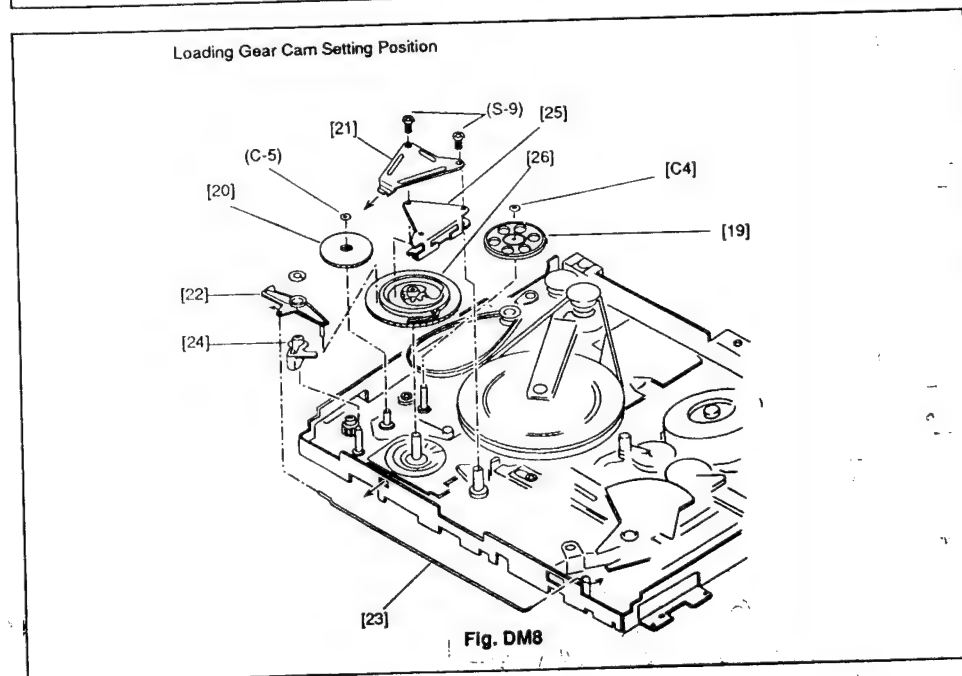
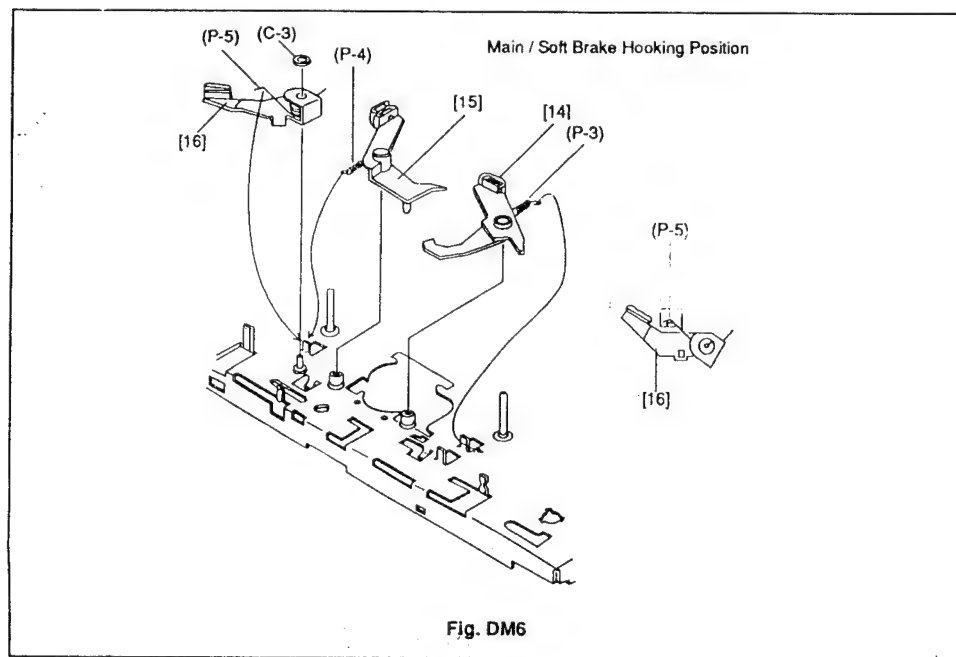
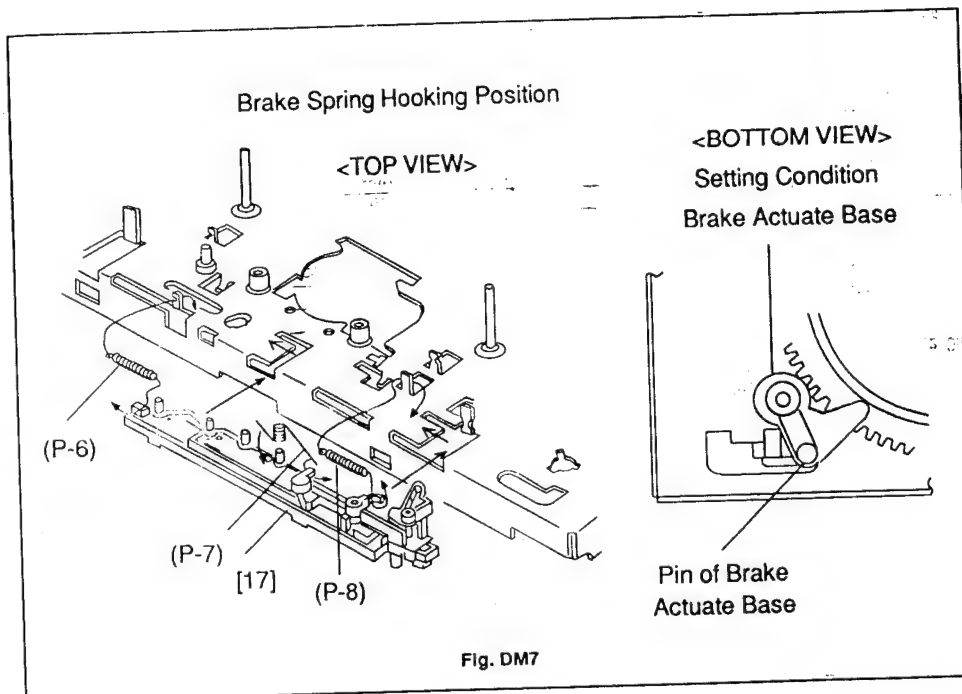
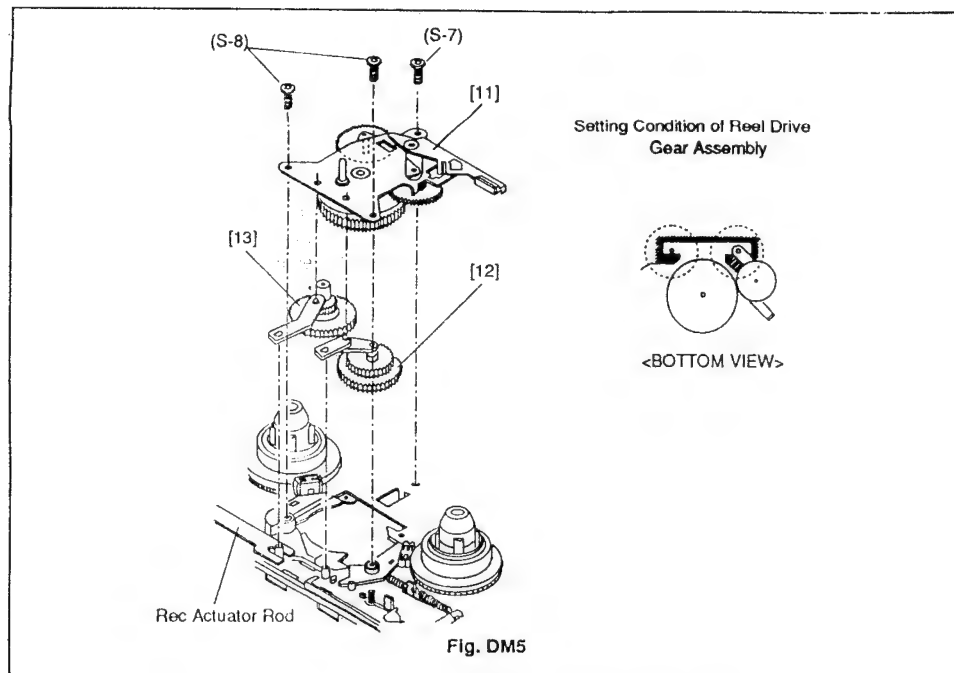
2. REPLACEMENT OF DRUM MOTOR

1. Disconnect the P.C.B Assembly DM from the stator of Drum Motor.
2. Remove 2 screws (S-11), and then take off the rotor of Drum Motor.
3. Remove 3 screws (S-12), and then take off the stator of Drum Motor.
4. Replace the stator of Drum Motor, and then tighten 3 screws (S-12).
5. Replace the rotor of Drum Motor, and then tighten 2 screws (S-11).
6. Connect the P.C.B Assembly DM to the stator of Drum Motor. (Refer to Fig. M11)
- Upon completion of above procedure, confirm and adjust the following items.
7. Play back Switching Point. (Refer to Electrical Adjustment)
8. X value. (Refer to MECHANICAL ADJUSTMENT PROCEDURES Item 1-E)

Note:

Install the rotor of Drum Motor so that the PG Magnet on the side of Drum Motor Type No. Label (TM-84) aligns with the Video Head CH-R. (Refer to Fig. M11)





Loading Gear Plate Setting Position

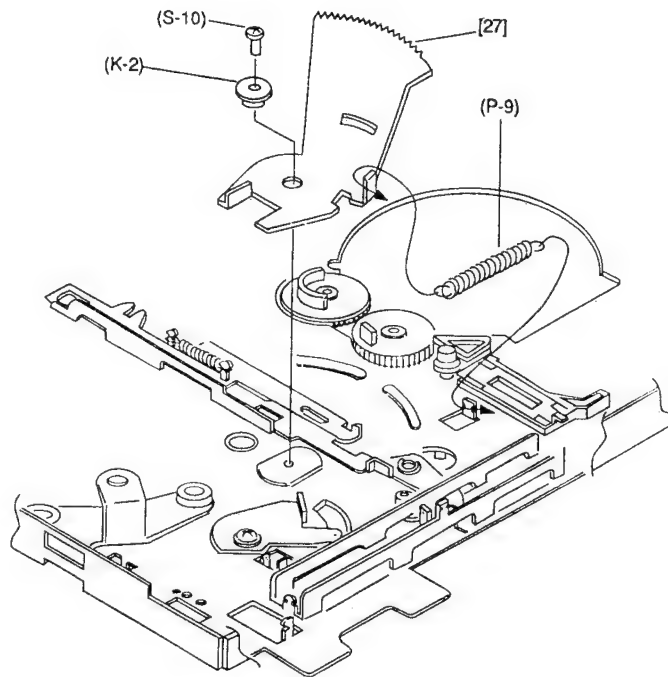
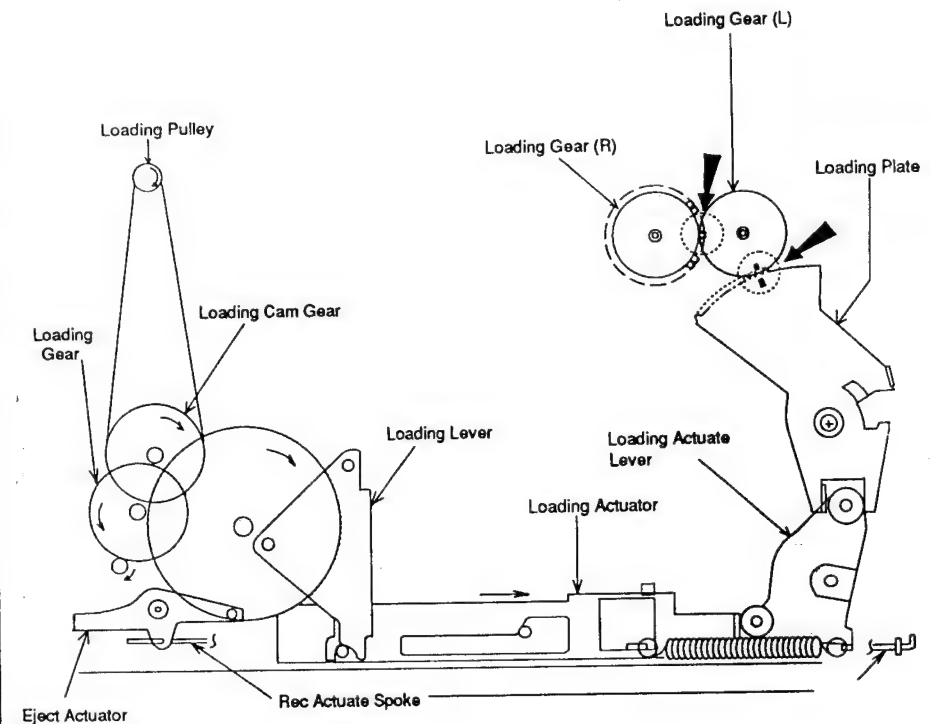


Fig. DM9

ALIGNMENT PROCEDURES OF MECHANISM

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch (Loading Cam) and the other gear (Loading Cam). Therefore the relation between the mode select switch (Loading Cam) and the other gear determines all further mechanical movement of the mechanical parts such as levers, gears, pulley and so on. For specific removal and installation procedures, refer to the Disassembly / Assembly Procedures. If these parts are not properly aligned, the unit will be unloaded or stopped. It may result in damage to the mechanical or electrical parts. The overall mechanical condition of the bottom views is shown in Fig. A1.

Adjustment Stop Mode

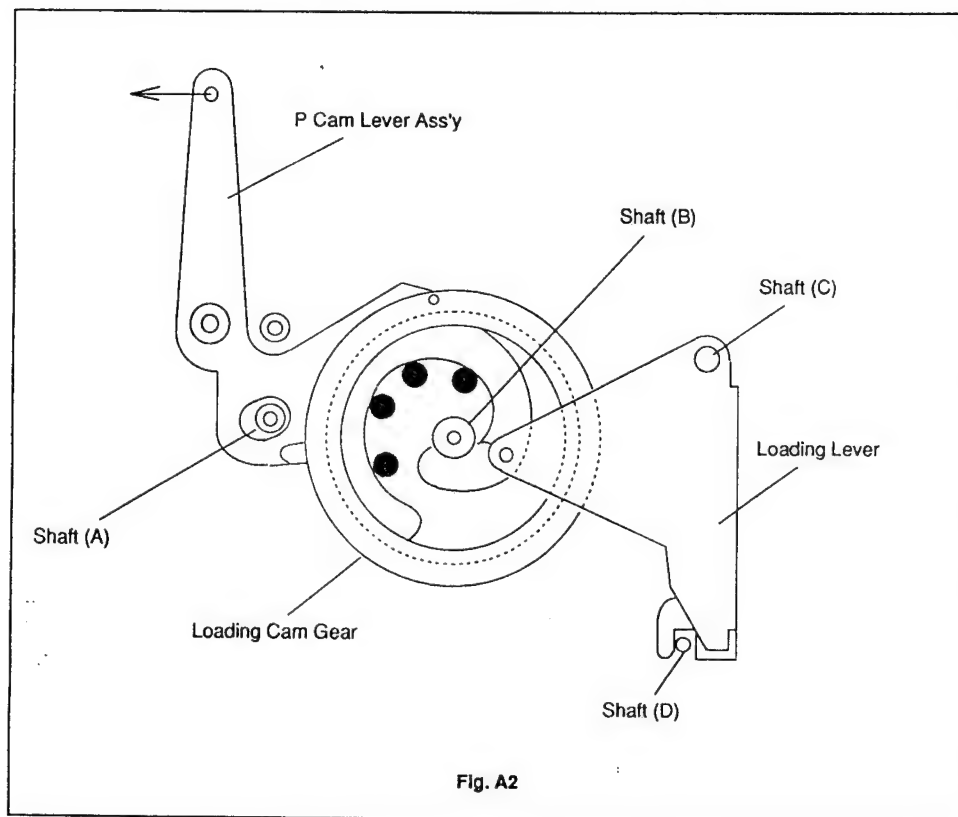


Bottom View of Overall Mechanical Condition

Fig. A1

ASSEMBLY PROCEDURES OF LOADING CAM AND LOADING LEVER

- 1) Push the P Cam Lever in the direction of the arrow. (In the opposite direction of Loading Cam Gear)
- 2) Turn the Cam rising portion on Loading Cam Gear in the direction of Shaft (A), then install Loading Cam Gear onto Shaft (B).
- 3) Install Loading Lever onto Shafts (C) and (D), then turn Loading Cam Gear clockwise or counterclockwise so that the Roller on the Loading Lever aligns with the groove on Loading Cam as shown in Fig. A2.



ALIGNMENT PROCEDURES OF LOADING GEAR PLATE

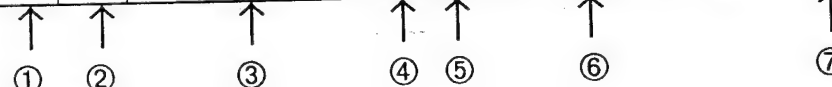
- 1) Projection on the Tape Loading Gear (R) aligns with the indentation on the Tape Loading Gear (L) as shown in Fig. A1.
- 2) Install the Loading Gear so that the indentation on the Loading Gear Plate aligns with the indentation on the Tape Loading Gear (L) the condition (per Item 1) above as shown in Fig. A1.

DISASSEMBLY / ASSEMBLY AND ADJUSTMENT OF CASSETTE UP UNIT

Notes on Installation:

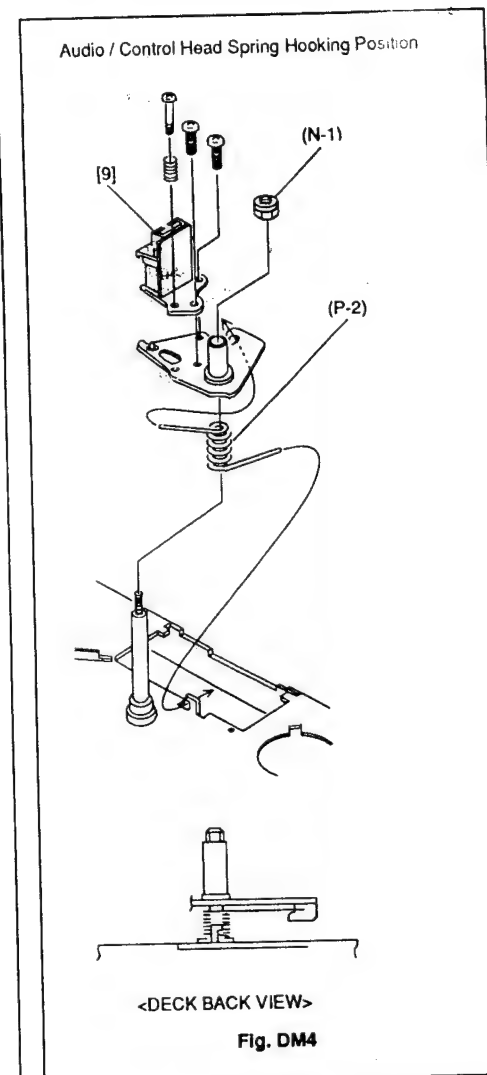
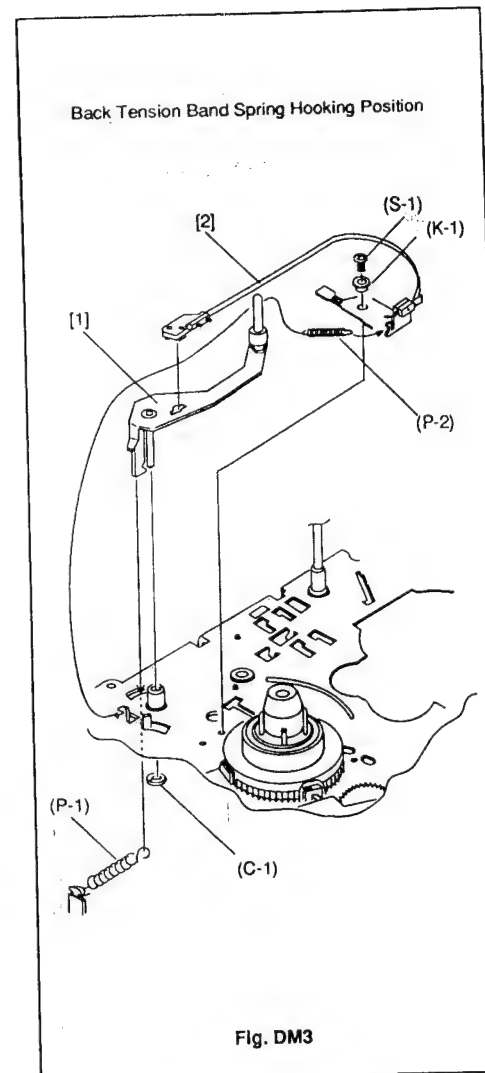
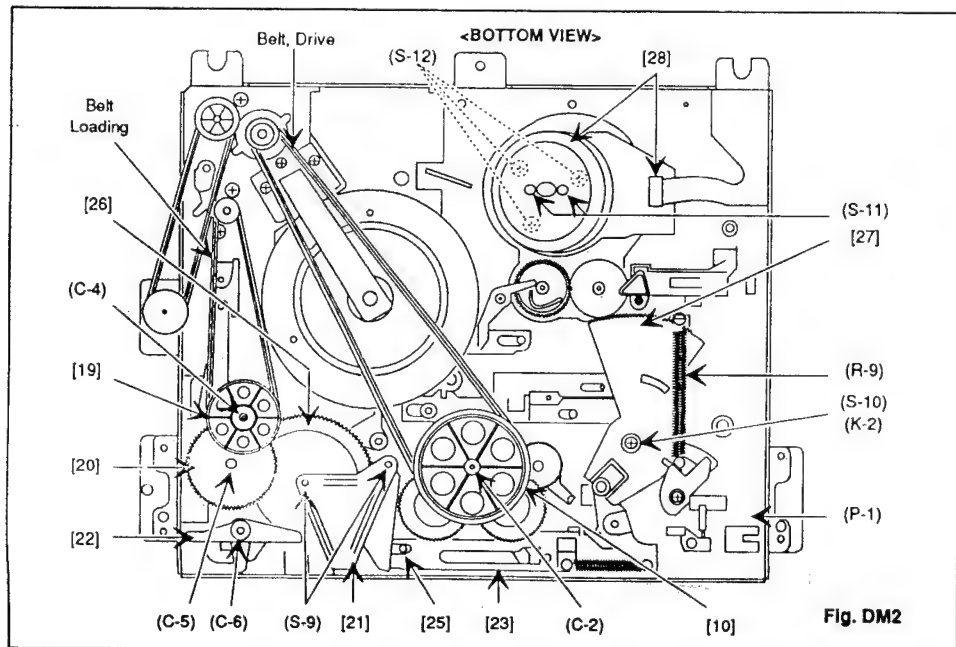
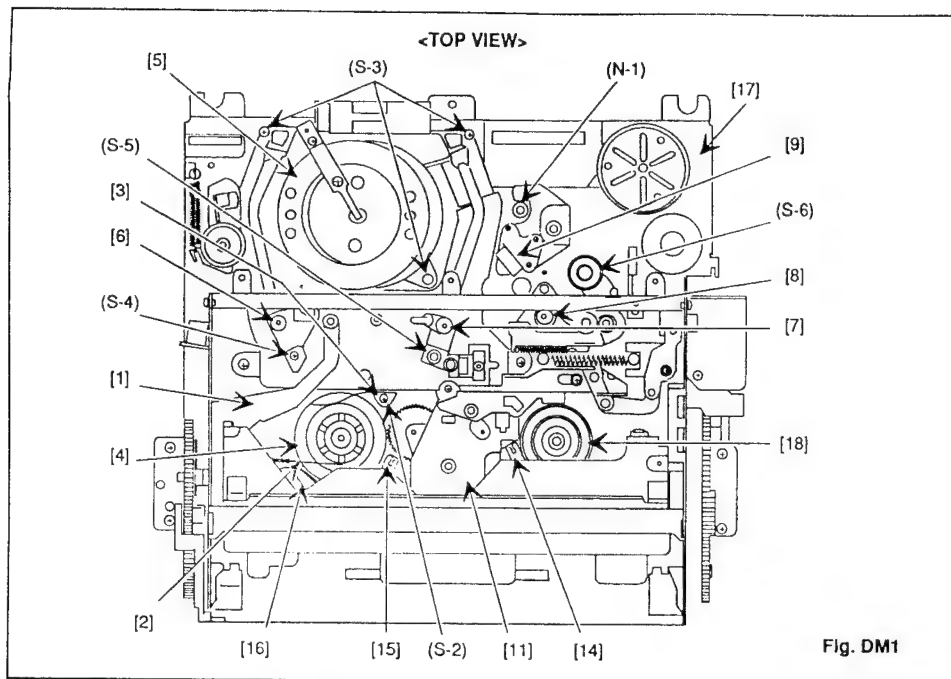
This procedure assumes that you have removed the Cassette Up Unit from chassis. When reassembling, perform the step(s) in the reverse order.

STEP NO.	START NO.	PART	REMOVAL		INSTALLATION
			FIG. NO.	REMOVE / *UNHOOK / UNLOCK / DESOLDER	
[1]	1	BRACKET ASSEMBLY, CASSETTE LOAD	R DA1	(S-1), DESOLDER WIRES	See Setting Condition in Fig. DA1
[2]	1	WORM WHEEL ASSEMBLY	R DA2	(R-1)	(+) See Alignment Procedure of Cassette Up Unit in Fig. MA15-1 and Fig. DA4
[3]	2	GEAR(R) ASSEMBLY, LIFT	R DA2	(R-2)	
[4]	3	GEAR(A), SYNCHRONIZE	R DA2	(R-3)	
[5]	5	LEVER, LIFT	L DA3	(P-1), (L-1)	See Setting Condition in Fig. DA3
[6]	5	GEAR(L) ASSEMBLY, LIFT	L DA6	(R-4)	See Alignment Procedure of Cassette Up Unit in Fig. MA15-2 and Fig. DA6
[7]	6	GEAR(A), SYNCHRONIZE	L DA6	(R-5)	



Note:

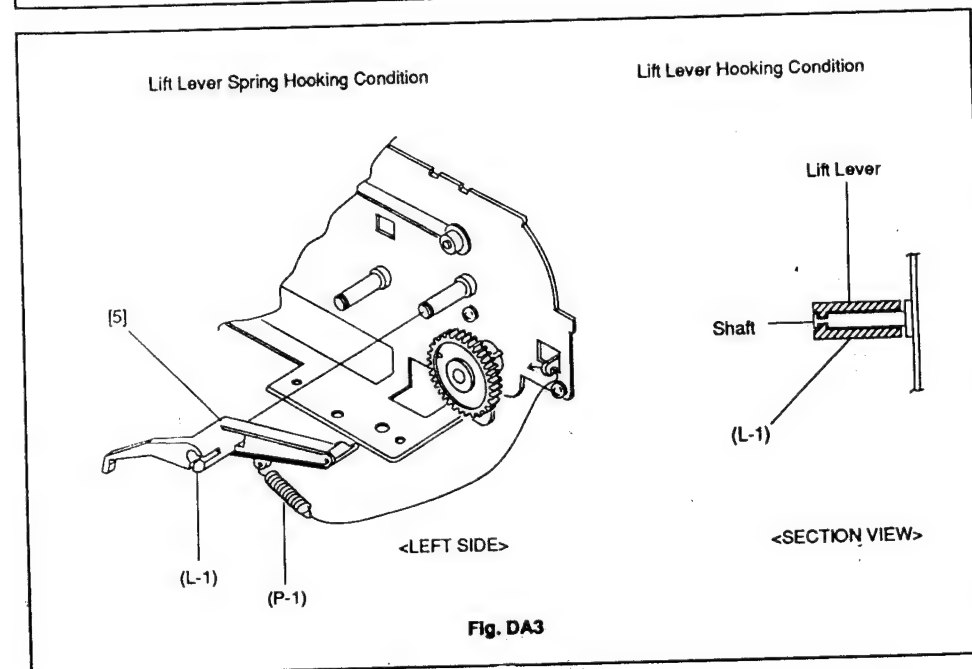
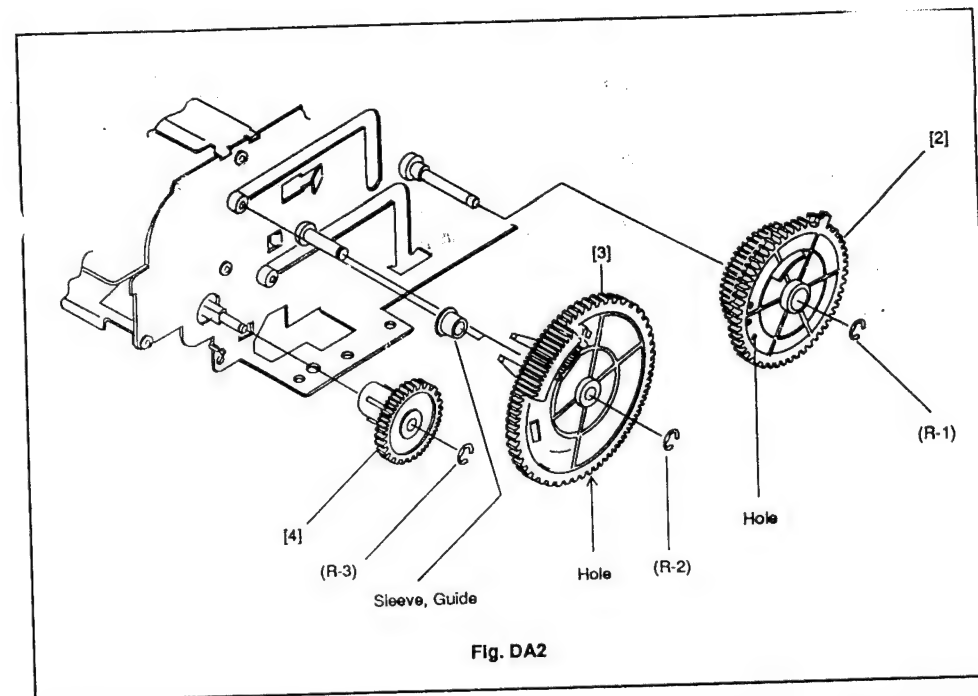
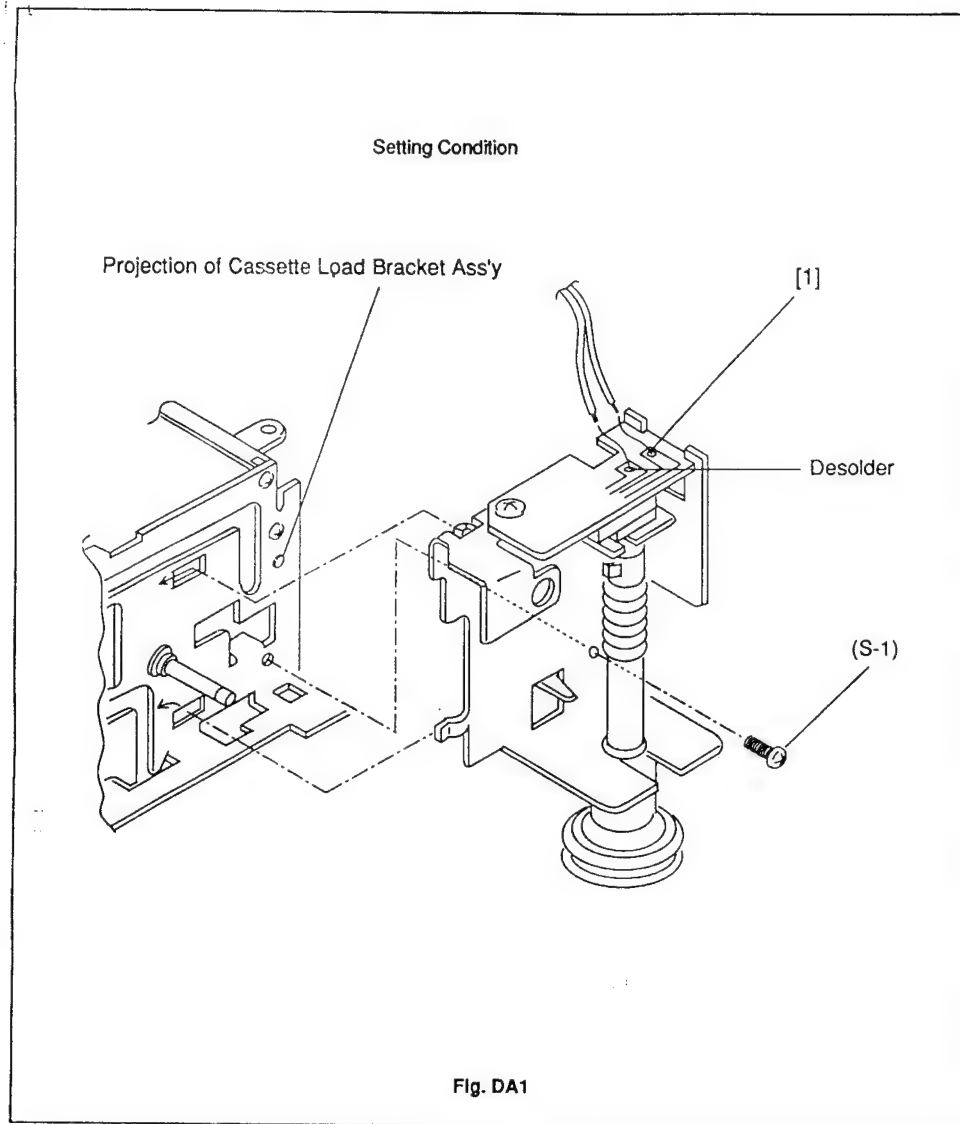
- ①: Order of steps in Procedure
When reassembling, perform the step (s) in the reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
- ②: Start No. followed by corresponding part to be removed at this stage
See example below.
Example : Cassette Load Bracket Assembly can be removed without removing any other parts, but -
Worm Wheel Assembly can be removed only after removing Cassette Load Bracket Assembly
(No. ①.)
- ③: Part to be removed or installed
- ④: Location of part
R = Right L = Left
- ⑤: Fig. No. showing Procedure or Part Location
- ⑥: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or desoldered
P = Spring W = Washer
C = Cut Washer R = Retaining Ring
N = Nut S = Screw
* = Unhook, unlock, release, unplug or desolder
2 (C-2) = 2 Cut Washers (C-2)
- ⑦: Adjustment information for installation
(+) : Refer to Exploded Views for Lubrication information.



CONFIRMATION AND ADJUSTMENT

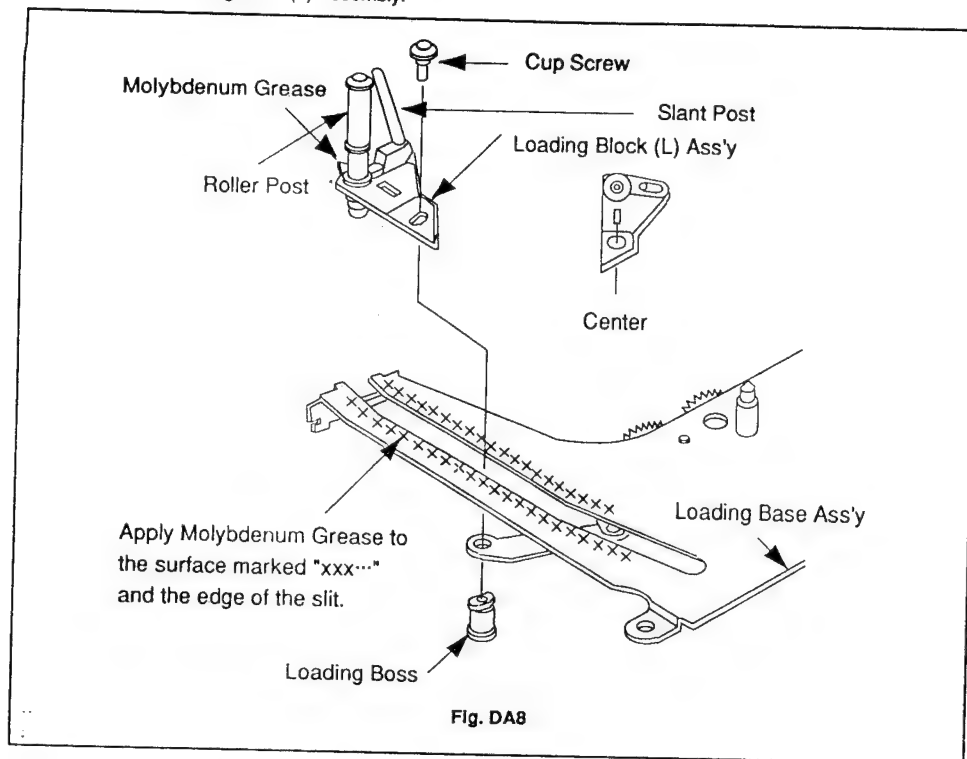
- PLAYBACK SWITCHING POINT
- X VALUE
- ENVELOPE WAVEFORM
- AUDIO OUTPUT LEVEL
- AZIMUTH
- TAPE TRANSPORTATION

Install the Gear Holder Ass'y so that the pin of Gear Holder Ass'y meets with the hole on the Return Arm.

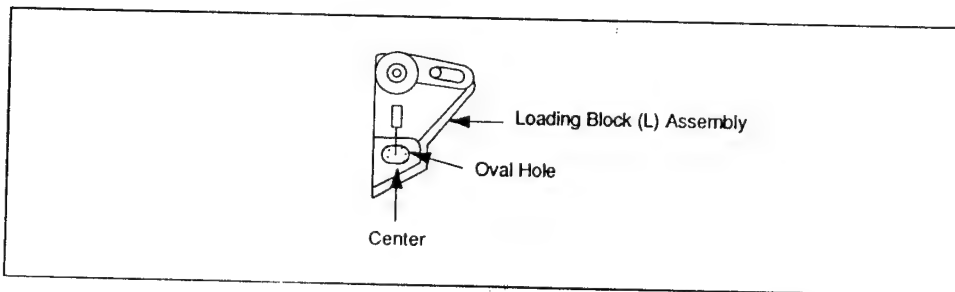


LOADING BLOCK (L) ASSEMBLY REMOVAL

- 1) Remove the Cup screw.
- 2) Then remove Loading Block (L) Assembly.



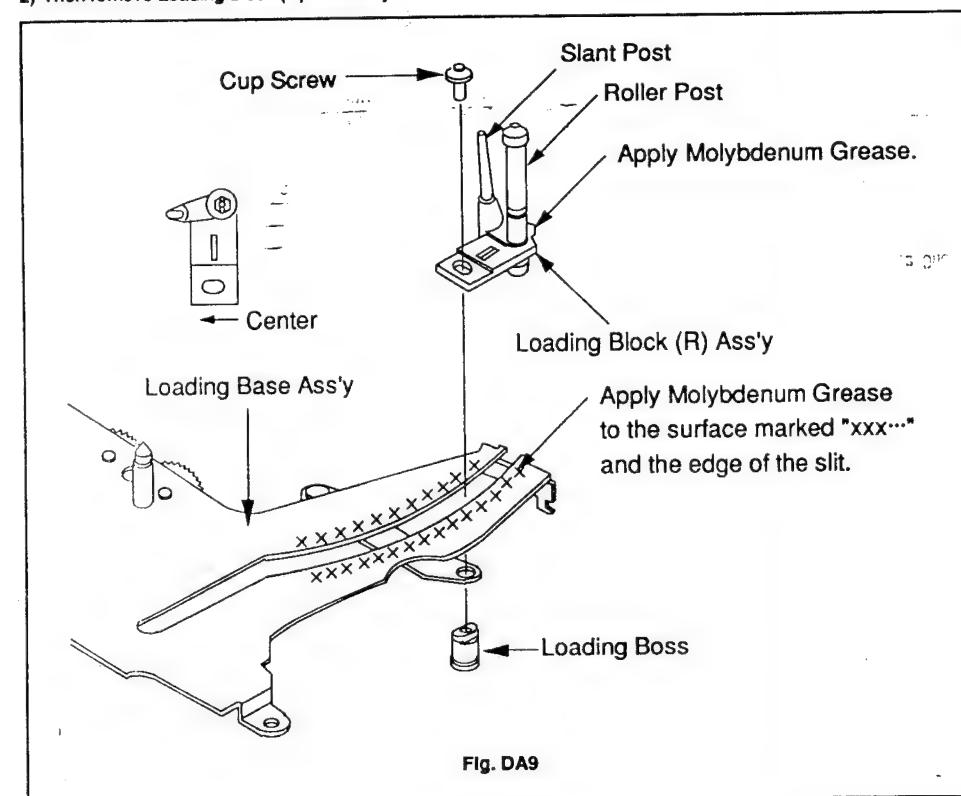
Note:
Do not stain Roller Post and Slant Post with grease.



Note:
When reassembling, position the loading boss in the center of the Oval Hole of Loading Block (L) Ass'y.

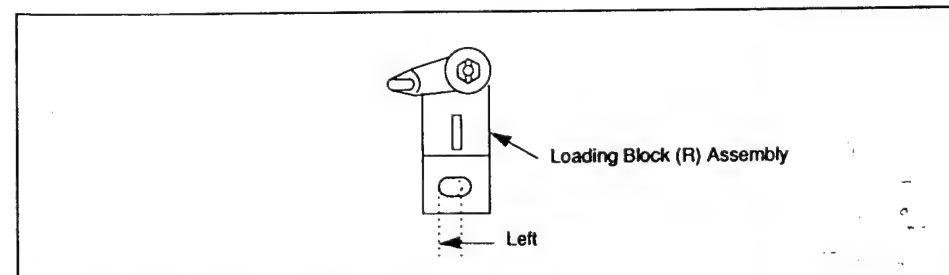
LOADING BLOCK (R) ASSEMBLY REMOVAL

- 1) Remove the cup screw.
- 2) Then remove Loading Block (R) Assembly.



Note:
Do not stain Roller Post and Slant Post with grease.

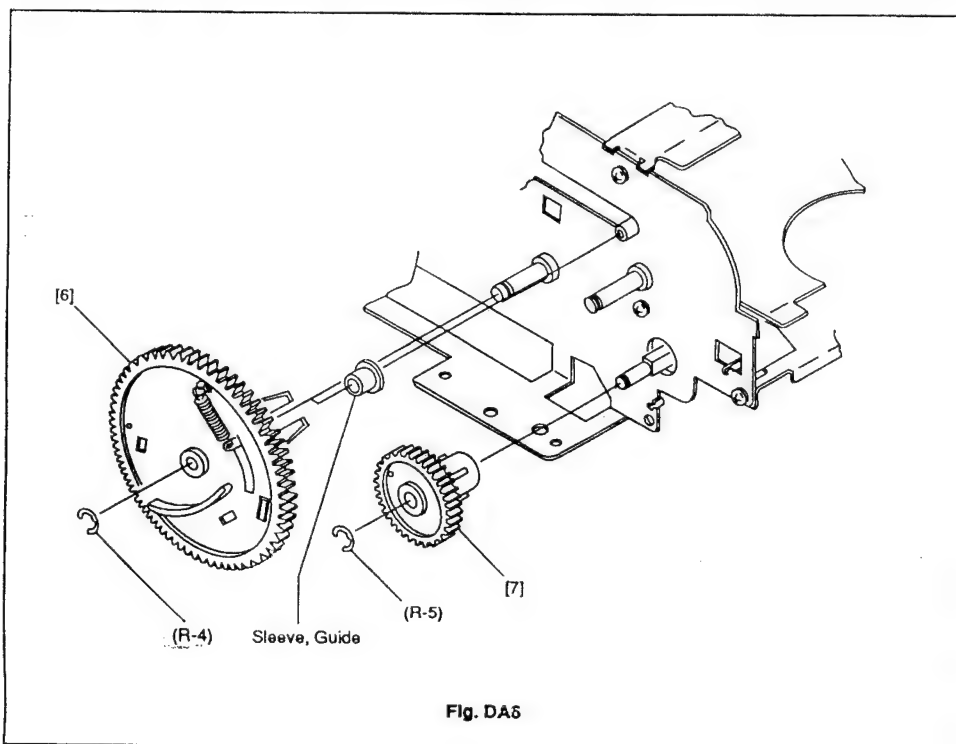
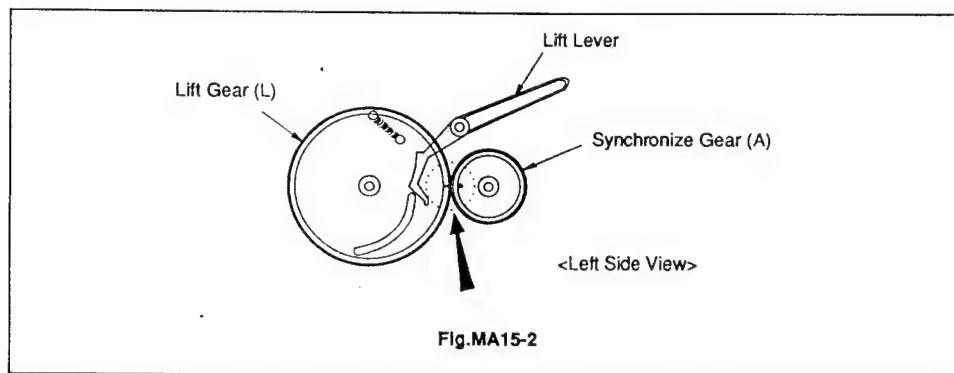
Note:
When reassembling, position the Loading boss to the extreme left end of the Oval Hole of the Loading Block (R) Assembly.



LIFT GEAR (L) ASSEMBLY

Assembly Procedure of Lift Gear (L) Assembly and Synchronize Gear.

1. Pull the Cassette Holder Assembly toward the front until it stops.
2. Install the Lift Gear (L) Assembly so that the indentation of the Lift Gear (L) Assembly aligns with the projection on the Synchronize Gear.

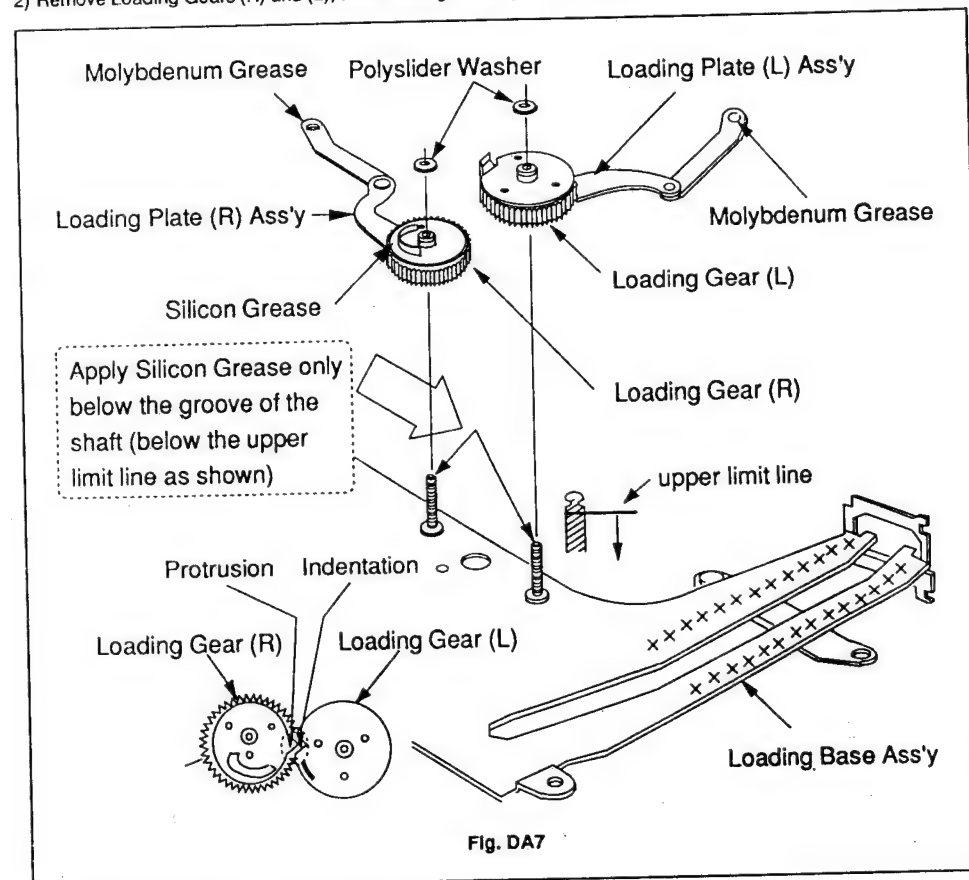


ALIGNMENT PROCEDURES OF LOADING GEAR PLATE

- 1) Align the protrusion of the Loading Gear (R) with the indentation of the Loading Gear (L) as shown in Fig. A1 in "ALIGNMENT PROCEDURE OF MECHANISM".
- 2) Install the Loading Gears (R) and (L) so that the indentation of the Loading Plate aligns with the indentation of the Loading Gear (L) with Item 1 condition, as shown in Fig. A1 in "ALIGNMENT PROCEDURE OF MECHANISM".

LOADING PLATE REMOVAL

- 1) Remove 2 Polyslider washers.
- 2) Remove Loading Gears (R) and (L), then Loading Plates (R) and (L) Assemblies can be removed.



Note:

When reassembling, fit the protrusion of the Loading Gear (R) with the indentation of the Loading Gear (L) as shown.

When reassembling, apply the Molybdenum Grease to the sliding surfaces marked "xxx..." shown in Fig. DA7.

ASSEMBLY PROCEDURE OF CASSETTE UP UNIT

Assembly Procedures of Synchronize Gear, Lift Gear (R) Assembly and Friction Gear Assembly

1. Pull the Cassette Holder Assembly toward the front until it stops.
2. Install the Lift Gear (R) Assembly so that the projection on the Lift Gear (R) Assembly aligns with the projection on the Synchronize Gear.
3. Install the Friction Gear Assembly so that the center hole of Friction Gear Assembly aligns with the hole of Lift Gear (R) Assembly as shown in Fig. DA5.

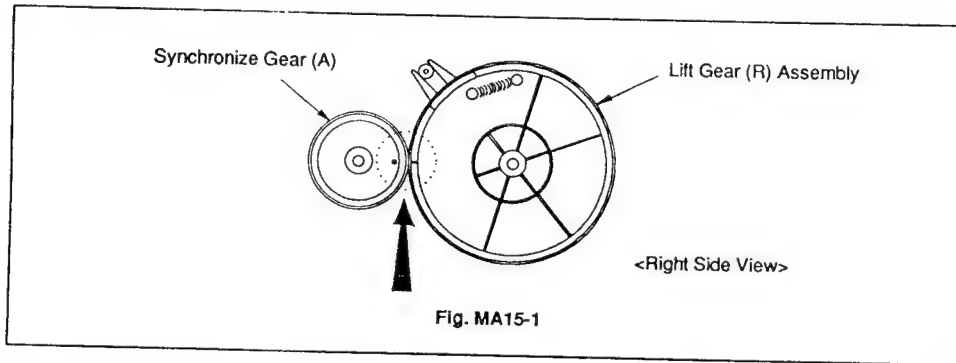


Fig. MA15-1

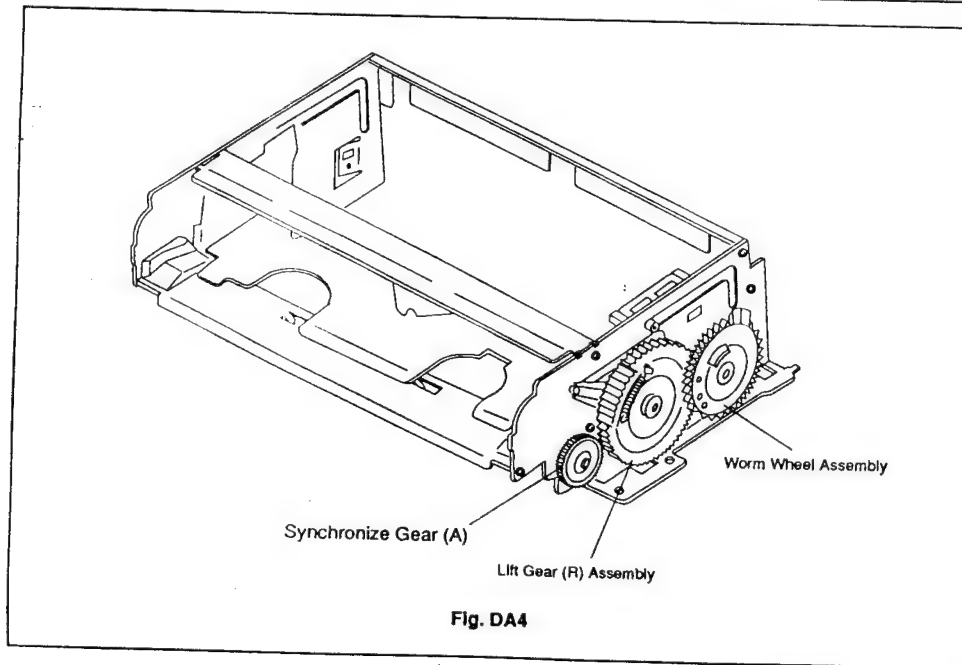


Fig. DA4

WORM WHEEL ASSEMBLY

When Assembling Worm Wheel Assembly, Refer to Fig. DA5 below.

1. Put the Friction Spring <A> portion into the groove (arrowed portion) on Worm Wheel.
2. Install the Friction Gear and place the Friction Spring portion into the groove (arrowed portion) on Friction Gear.
3. Continue inserting the Friction Gear to the Worm Wheel while twisting clockwise.

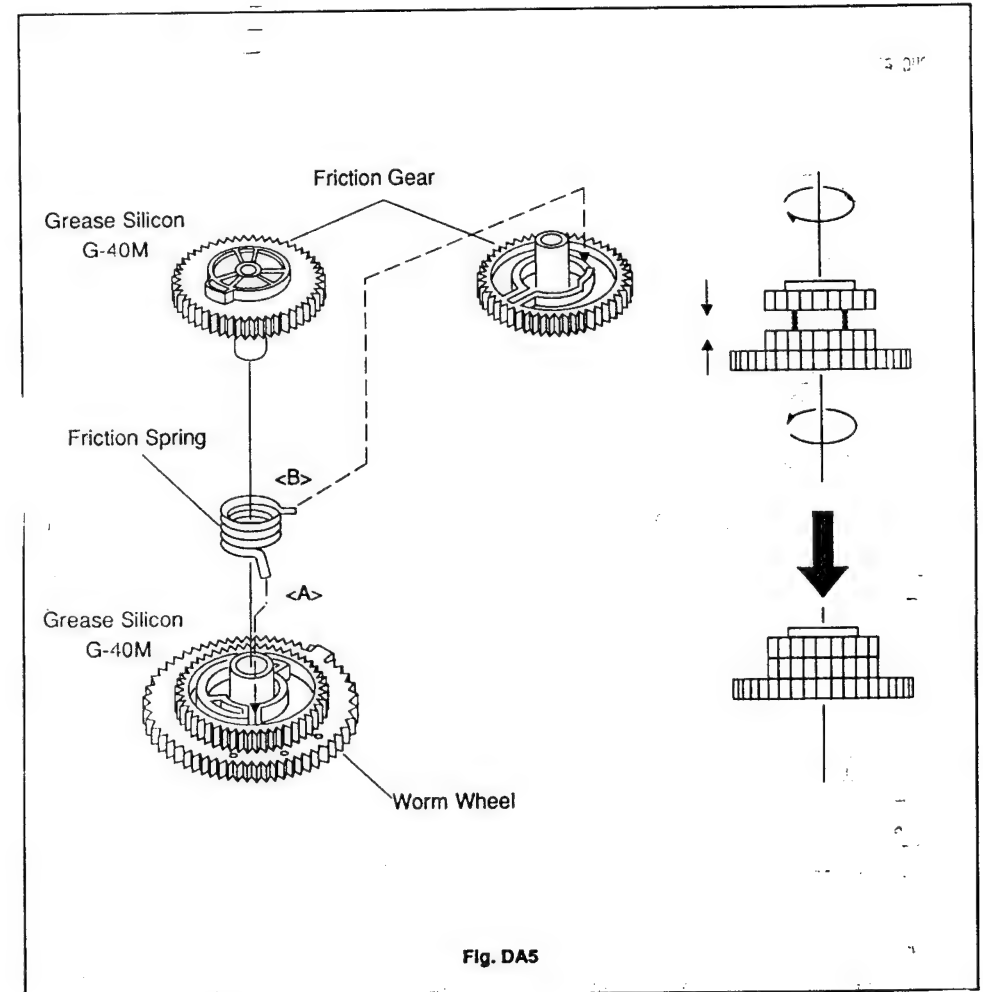
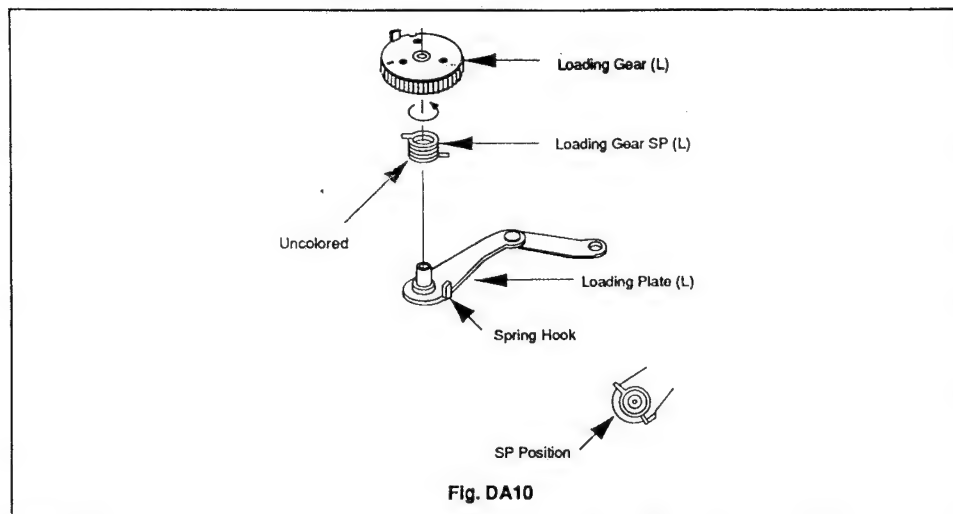


Fig. DA5

LOADING GEAR (L) REMOVAL

1) Pull out the Loading Gear (L) by turning it clockwise slightly.

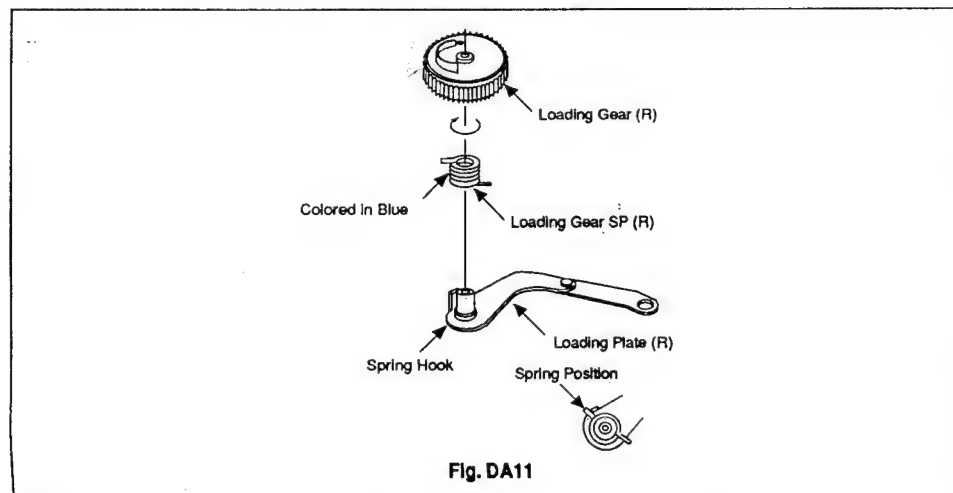


Note:

Do not mix Loading Gear SP (L) (Uncolored) with Loading Gear SP (R) (Colored in Blue).
Do not deform the Loading Plate (L).

LOADING GEAR (R) REMOVAL

1) Pull out the Loading Gear (R) by turning it counterclockwise slightly.



Note:

Do not deform the Loading Plate (R).
Do not mix Loading Gear SP (L) (Uncolored) with Loading Gear SP (R) (Colored in Blue).

ELECTRICAL ADJUSTMENT INSTRUCTIONS [TV]

General Note: "C.B.A." is abbreviation for "Printed Circuit Board Assembly".

NOTE:

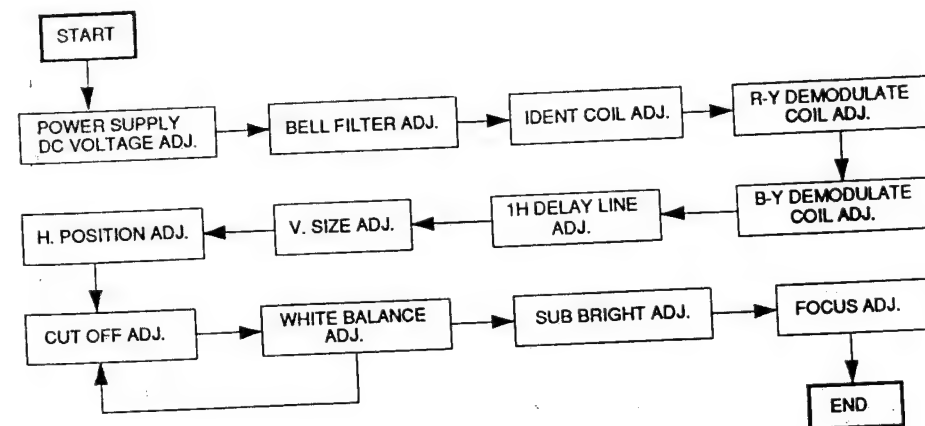
Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

TEST EQUIPMENT REQUIRED

1. Oscilloscope: Dual Trace with 10:1 probe
2. Monoscope
3. PAL and SECAM Pattern Generator
4. DC Volt Meter

HOW TO SET UP THE ADJUSTMENT MODE

Set Bright, Color, Contrast and Tint to center.



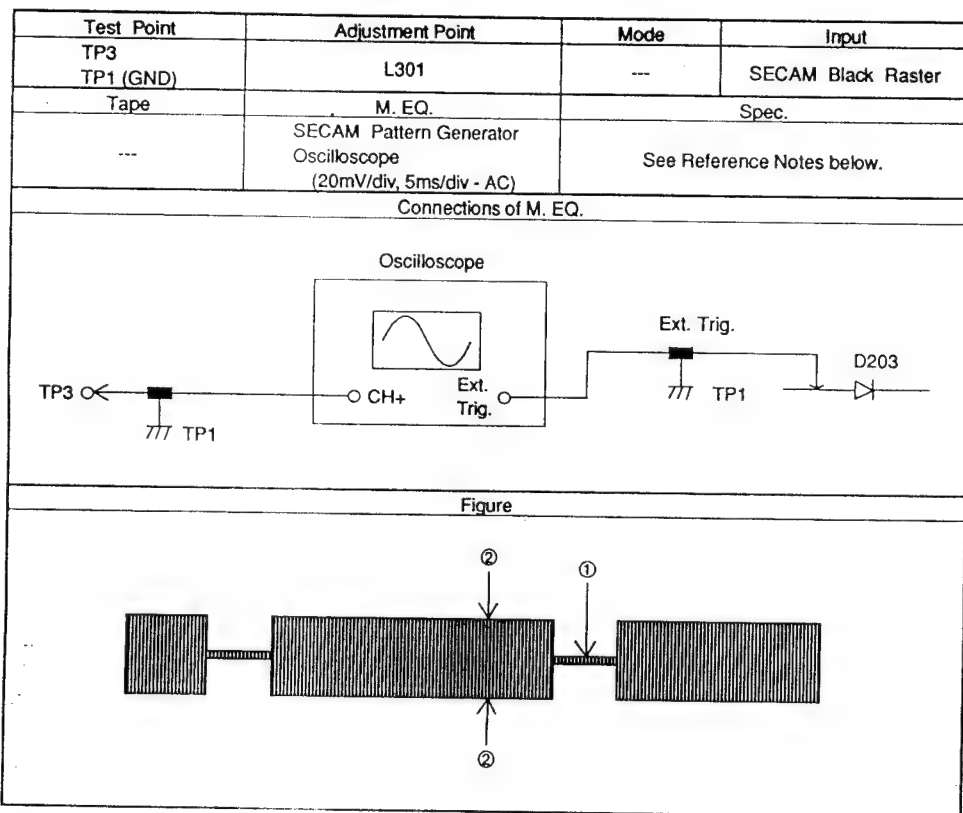
5. B-Y DEMODULATE COIL ADJUSTMENT (FOR SECAM)

Purpose:

To adjust the level of B-Y color difference signal.

Symptom of Misadjustment:

The R, G and B will be unbalanced.



Reference Notes:

TP1, TP3, L301 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the SECAM Black Raster.
3. Adjust L301 with core driver so that ① becomes center of ② as shown in the above table.

6. 1 H DELAY LINE ADJUSTMENT

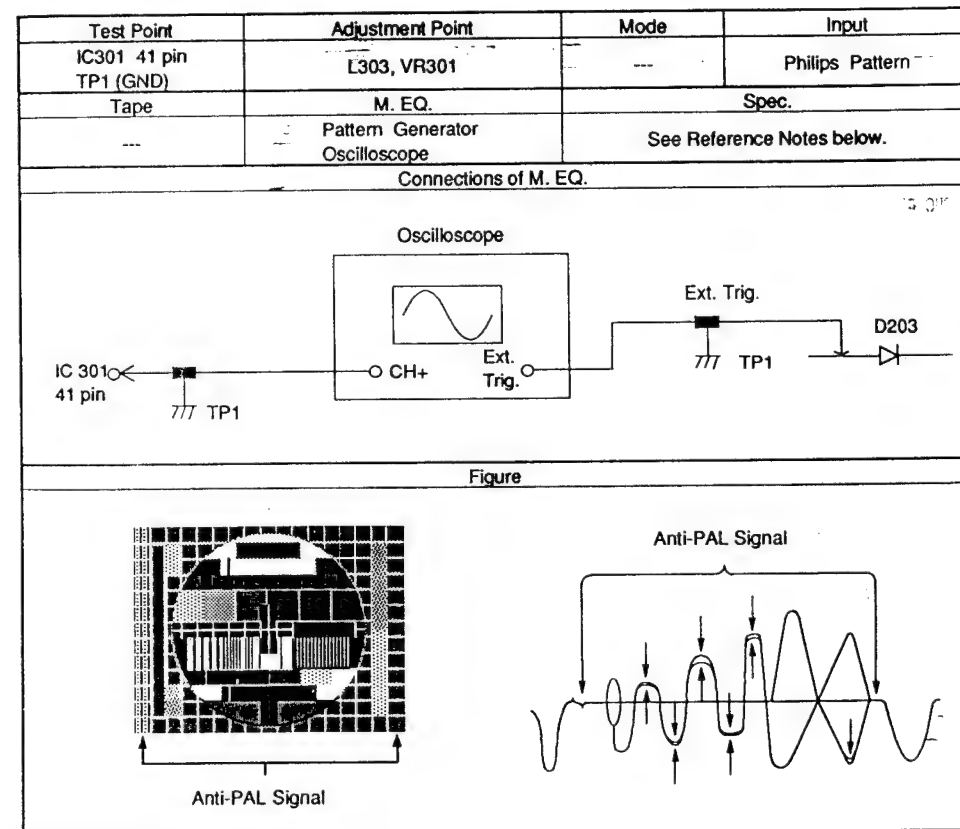
Purpose:

To get correct 1H delay line when the PAL signal is entered.

Symptom of Misadjustment:

The Anti-PAL signal part is colored when the Philips pattern is entered.

Each scanning line is colored on the color bar.



Reference Notes:

IC301, TP1, L303, VR301 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the Philips Pattern.
3. Adjust L303 and VR301 so that the amplitude at Anti-PAL signal part becomes minimum (no color) and the waveform at the color bar part is not seen in double ("Venetian Blind" does not appear at the color bar signal part).

1. POWER SUPPLY DC VOLTAGE ADJUSTMENT

Purpose:

To get correct voltage.

Symptom of Misadjustment:

If voltage is incorrect, picture is dark, or VCR is not operated correctly.

Test Point	Adjustment Point	Mode	Input
D603 (Cathode) R602 (at C603)	VR602 VR601	POWER OFF POWER ON	---
Tape	M. EQ.	Spec.	
---	DC Volt Meter	16.5±0.3V 112.5±0.5V	
Connections of M. EQ.			

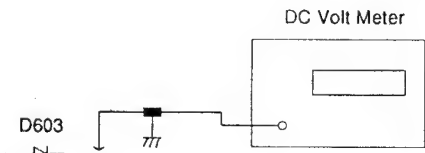


Fig. 1

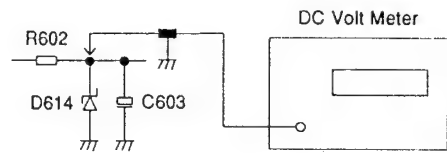


Fig. 2

Reference Notes:

D603, R602, VR601, VR602 : TV MAIN C.B.A.

1. Connect the equipment as shown in Fig. 1.
2. Adjust VR602 for reading 16.5±0.3V on the DC Volt Meter.
3. Connect the equipment as shown in Fig. 2.
4. Adjust VR601 for reading 112.5±0.5V on the DC Volt Meter.

Caution!

To avoid any hazards and damage of unit, be sure to do below;

- 1). Disconnect all cables from the VCR unit on the TV circuit.
- 2). Connect both terminal of C608 by 390Ω 5W resistor as VCR load resistance.
- 3). To inactivate F.B.T., ground the base of Q201.
- 4). Connect both terminal of C603 by 390Ω 140W resistor as F.B.T. load resistance.

B6400EA

2. BELL FILTER ADJUSTMENT (FOR SECAM)

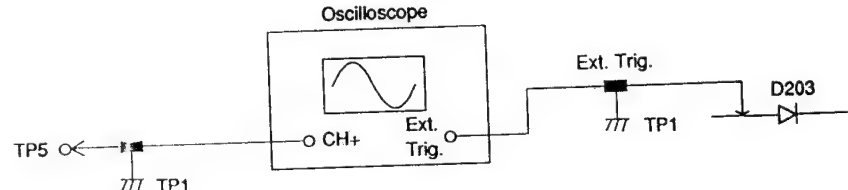
Purpose:

To adjust the center frequency of SECAM bell filter.

Symptom of Misadjustment:

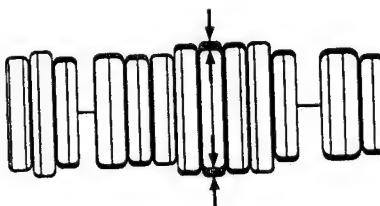
The color will be reversed when the SECAM signal is entered.

Test Point	Adjustment Point	Mode	Input
TP5 TP1 (GND)	L305	---	SECAM Color Bar
Tape	M. EQ.	Spec.	
---	SECAM Pattern Generator Oscilloscope (5mV/div, 10ms/div -AC)	See Reference Notes below.	
Connections of M. EQ.			



The diagram illustrates the test setup for the M. EQ. section. An oscilloscope is connected to test point TP5 at the CH+ input and test point TP1 at the Ext. Trig. input. The oscilloscope screen displays a sine wave. Below the oscilloscope, a diagram of a SECAM color bar signal is shown, consisting of a series of vertical bars of varying heights and widths, with a central bar being the tallest. Arrows indicate the signal flow from the test points to the oscilloscope and the color bar signal.

Figure



The diagram shows a SECAM color bar signal, which is a series of vertical bars of varying heights and widths, with a central bar being the tallest. Arrows indicate the signal flow from the test points to the oscilloscope and the color bar signal.

Reference Notes:

TP1, TP5, L305 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the SECAM Color Bar.
3. Adjust L305 with core driver to flat wave form.

B6400EA

3. IDENT COIL ADJUSTMENT (FOR SECAM)

Purpose:

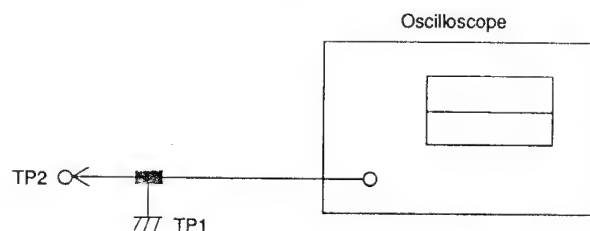
To adjust the peak value of SECAM IDENT signal.

Symptom of Misadjustment:

The display is not colored when the SECAM signal is entered.

Test Point	Adjustment Point	Mode	Input
TP2 TP1 (GND)	L308	---	SECAM Color Bar
Tape	M. EQ.	Spec.	
---	SECAM Pattern Generator Oscilloscope (0.2V/div, 5ms/div -DC)	See Reference Notes below.	

Connections of M. EQ.



Reference Notes:

TP1, TP2, L308 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the SECAM Color Bar.
3. Adjust L308 with core driver to peak DC voltage.

4. R-Y DEMODULATE COIL ADJUSTMENT (FOR SECAM)

Purpose:

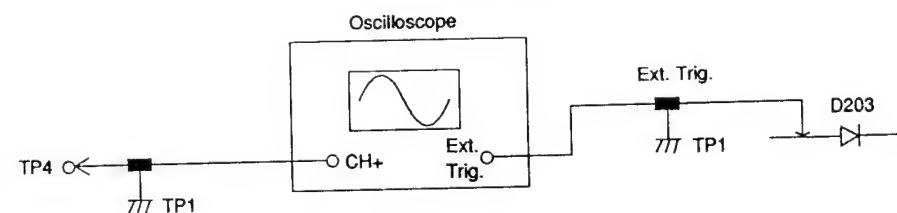
To adjust the level of R-Y color difference signal.

Symptom of Misadjustment:

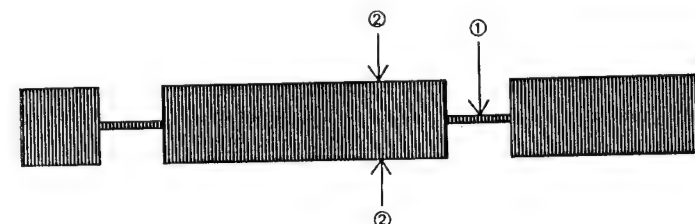
The R, G and B will be unbalanced.

Test Point	Adjustment Point	Mode	Input
TP4 TP1 (GND)	L302	---	SECAM Black Raster
Tape	M. EQ.	Spec.	
---	SECAM Pattern Generator Oscilloscope (20mV/div, 5MS/div - AC)	See Reference Notes below.	

Connections of M. EQ.



Figure



Reference Notes:

TP1, TP4, L302 : TV MAIN C.B.A.

1. Connect the equipment as shown in the above table.
2. Input the SECAM Black Raster.
3. Adjust L302 with core driver so that ① becomes center of ② as shown in the above table.

9. CUT OFF ADJUSTMENT

Purpose:

To adjust the beam current of R, G, B and screen voltage.

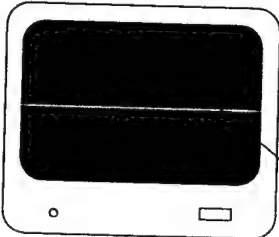
Symptom of Misadjustment:

White color may be reddish, greenish or bluish.

When the screen voltage is too high, the scanning line is appeared on the screen.

Test Point	Adjustment Point	Mode	Input
Screen	VR701, VR702, VR703, Screen-VR (F.B.T.)	---	White Raster (APL 100%)
Tape	M. EQ.	Spec.	
---	Pattern Generator	See Reference Notes below.	

Figure



Using this line

Reference Notes:

VR701, VR702, VR703, VR704, VR705 : TV CRT C.B.A.

VR303, SW301 : TV MAIN C.B.A.

Screen-VR : TV MAIN C.B.A. (F.B.T.)

1. Operate the unit more than 20 minutes.
2. Degauss the CRT using Degaussing Coil.
3. Input the white Raster (APL 100%).
4. Turn the Screen-VR fully counterclockwise.
5. Set VR701(Blue), VR702(Green), VR703(Red), VR704(R. Drive), VR705(B. Drive) and VR303(Sub Bright) to center.
6. Set the SW301(Service SW) to ON.
7. Slowly turn the Screen-VR to the point where horizontal line just illuminates.
8. Adjust VR701(Blue), VR702(Green) and VR703(Red) so that horizontal line becomes pure white.
9. Turn off the SW301(Service SW).

Note:

Confirm that White Balance Adj. is correct after this adjustment, and attempt White Balance Adj. if needed.

10. WHITE BALANCE ADJUSTMENT

Purpose:

To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment:

White becomes bluish or reddish.

Test Point	Adjustment Point	Mode	Input
Screen	VR704, VR705	---	Color Bar signal with 100% White Level
Tape	M. EQ.	Spec.	
---	Pattern Generator	See Reference Notes below.	

Reference Notes:

VR704, VR705 : TV CRT C.B.A.

1. Operate the unit more than 20 minutes.
2. Face the unit to east. Degauss the CRT using Degaussing Coil.
3. Input the Color Bar signal.
4. Adjust VR704(R. DRIVE) and VR705(B. DRIVE) so that white area is shown pure white.

Note:

Confirm that Cut Off Adj. is correct after this adjustment, and attempt Cut Off Adj. if needed.

11. SUB BRIGHT ADJUSTMENT

Purpose:

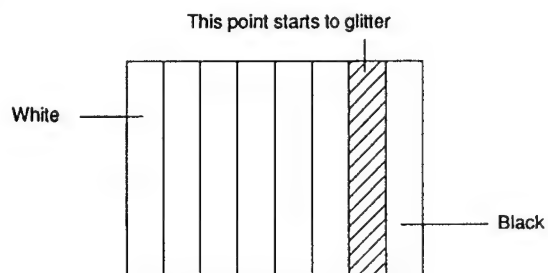
To get proper brightness.

Symptom of Misadjustment:

Proper brightness cannot be obtained by adjusting the Bright Control.

Test Point	Adjustment Point	Mode	Input
Screen	VR303	---	Gray Scale
Tape	M. EQ.		Spec.
---	Pattern Generator		See Reference Notes below.

Figure



Reference Notes:

VR303 : TV MAIN C.B.A.

1. Operate the unit more than 20 minutes.
2. Input the 8-step Gray scale.
3. Adjust VR303 to a point where the one level higher than the black-level starts flashing. (2nd level from the right)

12. FOCUS ADJUSTMENT

Purpose:

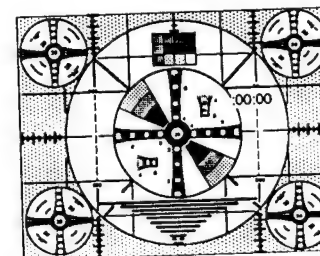
To get correct focus.

Symptom of Misadjustment:

Blurred image is shown on the display.

Test Point	Adjustment Point	Mode	Input
Screen	Focus-VR (F.B.T.)	---	Monoscope Pattern
Tape	M. EQ.		Spec.
---	Monoscope		Clear picture

Figure



Reference Note:

Focus-VR : TV MAIN C.B.A. (F.B.T.)

1. Operate the unit more than 20 minutes.
2. Input the Monoscopic Pattern.
3. Adjust Focus-VR to be obtained clear picture.

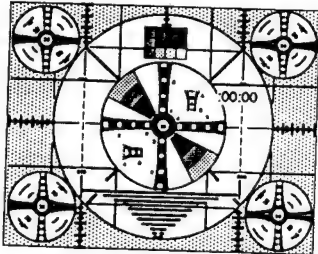
7. V. SIZE ADJUSTMENT

Purpose:

To get correct vertical height of screen image.

Symptom of Misadjustment:

Vertical height of screen image may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
Screen	VR302	---	Monoscope Pattern
Tape	M. EQ.		Spec.
---	Monoscope		90±5%
Figure			
			

Reference Note:

VR302 : TV MAIN C.B.A.

1. Operate the unit more than 20 minutes.
2. Input the Monoscopic Pattern.
3. Adjust VR302 so that the monoscopic pattern will be 90±5% of display size and the circle is round.

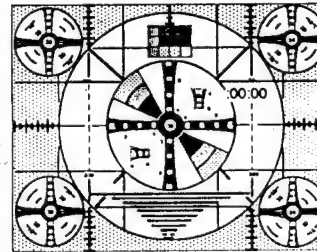
8. H. POSITION ADJUSTMENT

Purpose:

To get correct horizontal position of screen image.

Symptom of Misadjustment:

Horizontal position of screen image may not be properly displayed.

Test Point	Adjustment Point	Mode	Input
Screen	VR304 (R342)	---	Monoscope Pattern
Tape	M. EQ.		Spec.
---	Monoscope		See Reference Notes below.
Figure			
			

Reference Note:

VR304 : TV MAIN C.B.A.

1. Operate the unit more than 20 minutes.
2. Input the Monoscopic Pattern.
3. Adjust VR304 so that the right and left of monoscopic pattern will be equal.

ELECTRICAL ADJUSTMENT INSTRUCTIONS [VCR]

General Note: "C.B.A." is abbreviation for "Printed Circuit Board Assembly".

NOTE:

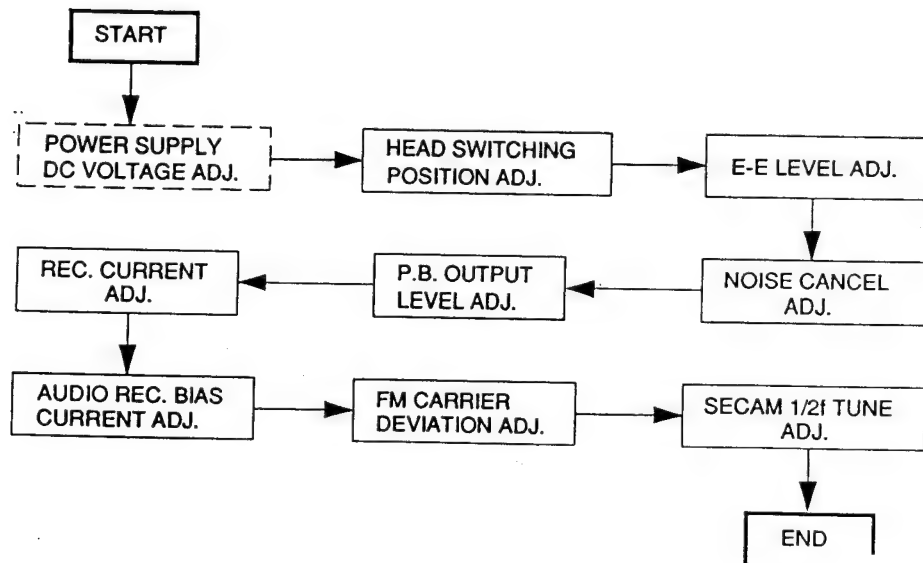
Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

TEST EQUIPMENT REQUIRED

1. Oscilloscope: Dual-trace with 10:1 probe, V-Range: 0.001~50v/Div., F-Range: AC~DC-20MHz
2. PAL/SECAM Pattern Generator (Color bar with 100% white)
3. AC Voltmeter (RMS)
4. Alignment Tape (F6-A, Blank Tape)
5. Spectrum Analyzer

HOW TO SET UP THE ADJUSTMENT MODE

If not already done, execute Power Supply DC Voltage Adj. (P. 16-2) first.



1. HEAD SWITCHING POSITION ADJUSTMENT

Note: Before attempting the mechanical adjustment, must be completed this adjustment.

Purpose:

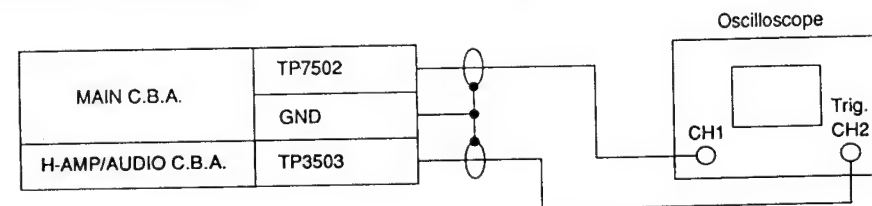
Determine the Head Switching Point during Playback.

Symptom of Misadjustment:

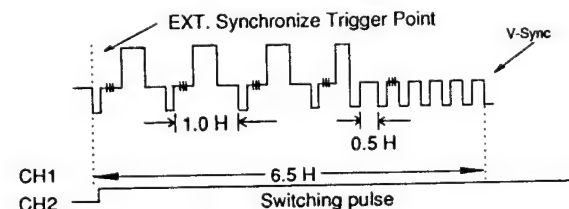
May cause Head Switching Noise or Vertical Jitter in the picture.

Test Point	Adj. Point	Mode	Input
TP7502 (V-OUT) TP3503 (RF-SW) GND	VR2001 (HEAD SWITCHING)	PLAY	—
Tape	M. EQ.	Spec.	
F6-A	Oscilloscope	6.5H±1H (412.7μs±60μs)	

Connections of M. EQ.



Figure



Reference Notes:

TP3503 : HEAD AMP/AUDIO C.B.A.

TP7502, VR2001 : VCR MAIN C.B.A.

1. Connect the equipment as shown in the above table.

2. Set tracking control to the neutral position.
(Press the channel up and down buttons of the unit together during PLAY mode.)

3. Playback test tape and adjust VR2001 so that the V-sync front edge of CH1 video output waveform is delayed 6.5H(412.7μs) from the rising of CH2 Head Switching pulse waveform.

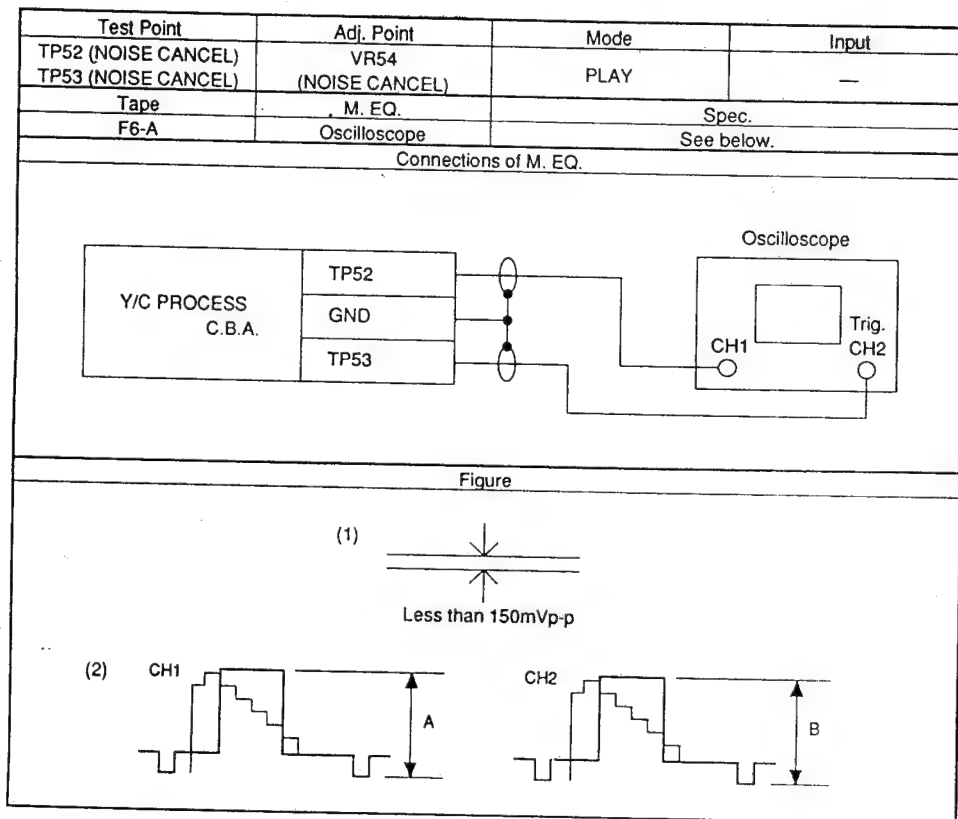
4. NOISE CANCEL ADJUSTMENT

Purpose:

Improve the overall S/N Ratio, especially in the Low Frequency Component.

Symptom of Misadjustment:

The S/N Ratio will be lower.



Reference Notes:

TP52, TP53, VR54 : Y/C PROCESS C.B.A.

Adjust the Noise Cancel for choice (1) or (2).

- (1): 1. Connect the equipment as shown in the above table.
2. Set the input trigger mode to CH2 and set trigger slope to (+).
3. Invert CH2 signal (TP53) and select ADD mode.
4. Playback the tape and adjust VR54 so that the level becomes minimum.
- (2): 1. Connect the equipment as shown in the above table.
2. Set the input trigger mode to CH2 and set trigger slope to (+).

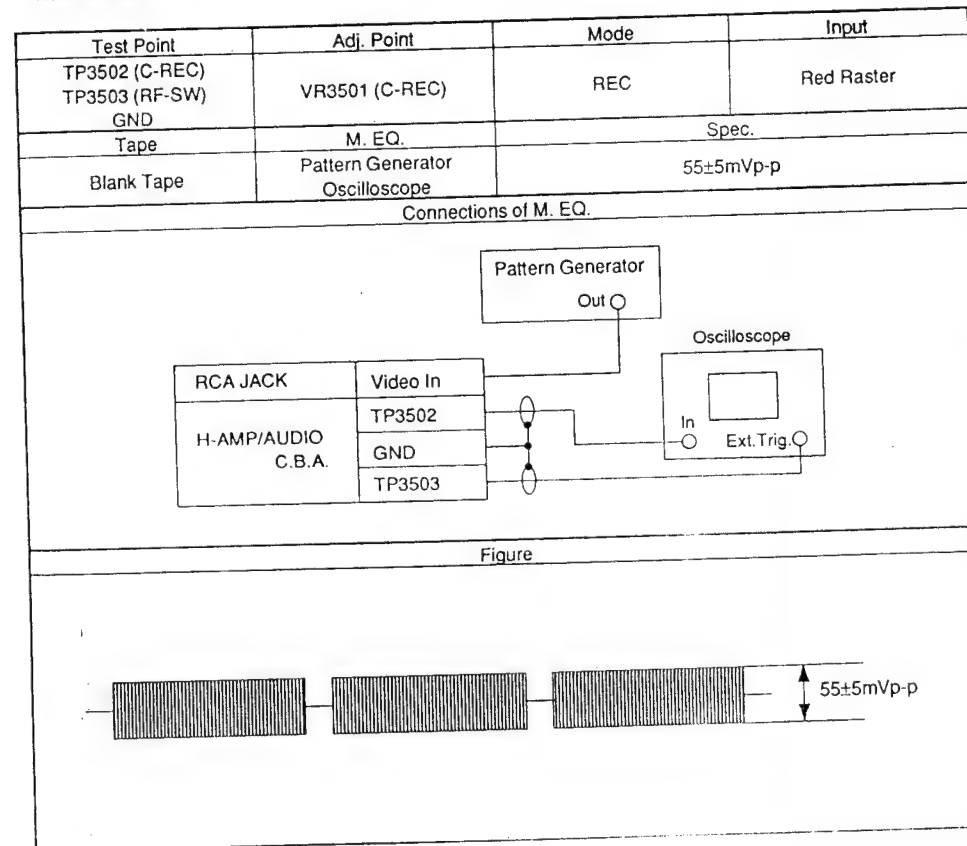
5. REC. CHROMA ADJUSTMENT

Purpose:

Set the optimum Record Chroma Level.

Symptom of Misadjustment:

If the Record Chroma Level is too high, beats may cause on the picture, and in case of too low, the Chroma S/N Ratio will be lower.



Reference Notes:

TP3502, TP3503, VR3501 : HEAD AMP/AUDIO C.B.A.

1. Connect the equipment as shown in the above table.
2. Input Red only signal to Video Input.
3. Adjust VR3501 so that the Chroma Level becomes 55±5mVp-p.

6. AUDIO REC. BIAS CURRENT ADJUSTMENT

Purpose:

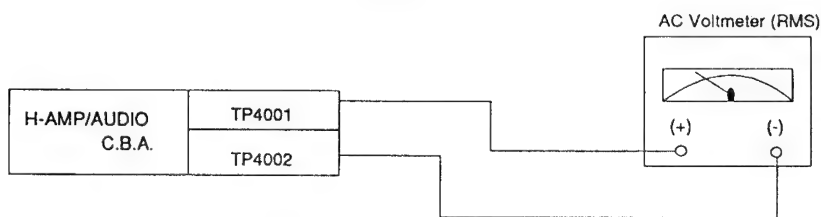
Set Optimum Record Audio Bias Level.

Symptom of Misadjustment:

If Audio Bias Level is too high, the Frequency Response deteriorates. If the level is too low, sound distortion may cause.

Test Point	Adj. Point	Mode	Input
TP4001 (BIAS+) TP4002 (BIAS-) GND	VR4001 (BIAS)	REC	—
Tape	M. EQ.	Spec.	
Blank Tape	AC Voltmeter or Oscilloscope	22.0mV RMS	

Connections of M. EQ.



* Do not enter Input Signal.

Reference Notes:

TP4001, TP4002, VR4001 : HEAD AMP/AUDIO C.B.A.

1. Connect the equipment as shown in the above table.
2. Insert a blank tape and set the VCR to REC (SP) mode.
(Do not set to PAUSE. In PAUSE mode, the bias oscillation is stopped.)
3. Adjust VR4001 so that the voltage becomes 22.0mV.

7. FM CARRIER DEVIATION ADJUSTMENT

Purpose:

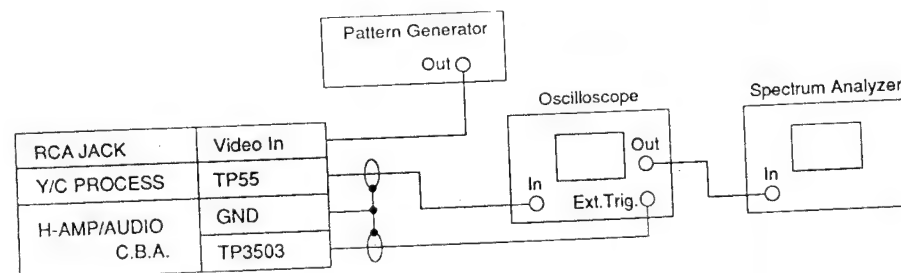
To align FM carrier deviation.

Symptom of Misadjustment:

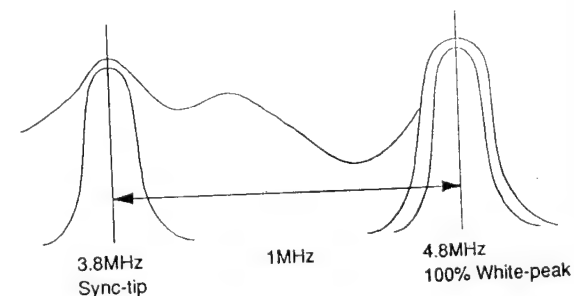
If the deviation is not correct, abnormal contrast of light and shadow on the picture may be seen.
If the carrier deviation is not correct, Beats appear on the picture.

Test Point	Adj. Point	Mode	Input
TP55 (CRR/DEV) TP3503 (RF-SW)	VR51 (CARR) VR52 (DEVIATION)	REC	White Raster (APL 100%)
Tape	M. EQ.	Spec.	
Blank Tape	Pattern Generator Spectrum Analyzer Oscilloscope	Sync-tip 3.8MHz±50KHz 100% White peak 4.8MHz±50KHz	

Connections of M. EQ.



Figure



Reference Notes:

TP55, VR51, VR52 : Y/C PROCESS C.B.A.

TP3503 : HEAD AMP/AUDIO C.B.A.

1. Connect the equipment as shown in the above table.
2. Input White 100% only signal to Video Input.
3. Adjust Sync-tip to 3.8MHz±50KHz by VR51, White-peak for 4.8MHz±50KHz by VR52.

2. E-E LEVEL ADJUSTMENT

Purpose:

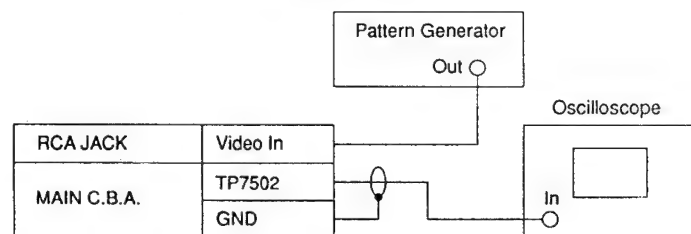
Set the optimum E-E Luminance Level.

Symptom of Misadjustment:

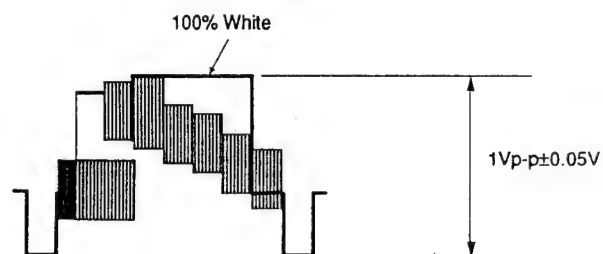
If the E-E Level is too high, TV may overload. If the Level is too low, the S/N Ratio deteriorates.

Test Point	Adj. Point	Mode	Input
TP7502 (V-OUT)	VR55 (E-E)	E-E	Color Bar with 100% White
Tape	M. EQ.	Spec.	
	Pattern Generator Oscilloscope	1Vp-p $\pm 0.05V$	

Connections of M. EQ.



Figure



Reference Notes:

TP7502 : VCR MAIN C.B.A.

VR55 : Y/C PROCESS C.B.A.

1. Connect the equipment as shown in the above table.
2. Input Color Bar signal with 100% White to Video Input.
3. Adjust VR55 so that the video level becomes 1Vp-p $\pm 0.05V$. (Connected to TV).

3. P.B. OUTPUT LEVEL ADJUSTMENT

Purpose:

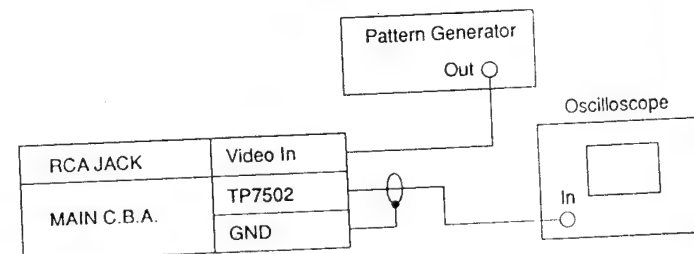
Set the Optimum Playback Luminance Level.

Symptom of Misadjustment:

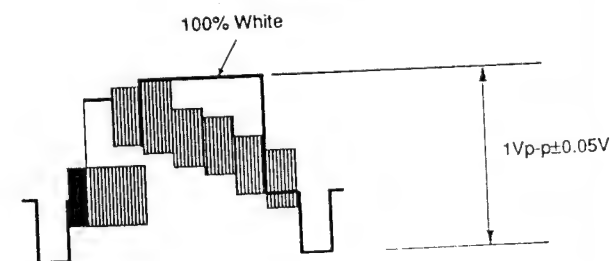
If the P.B. Output Level is too high, TV may overload. If the Level is too low, the S/N Ratio deteriorates.

Test Point	Adj. Point	Mode	Input
TP7502 (V-OUT)	VR53 (PB LEVEL)	PLAY	—
Tape	M. EQ.	Spec.	
F6-A	Pattern Generator Oscilloscope	1Vp-p $\pm 0.05V$	

Connections of M. EQ.



Figure



Reference Notes:

TP7502 : VCR MAIN C.B.A.

VR53 : Y/C PROCESS C.B.A.

1. Connect the equipment as shown in the above table.
2. Playback test tape and adjust VR53 so that the video level becomes 1Vp-p $\pm 0.05V$. (Connected to TV)

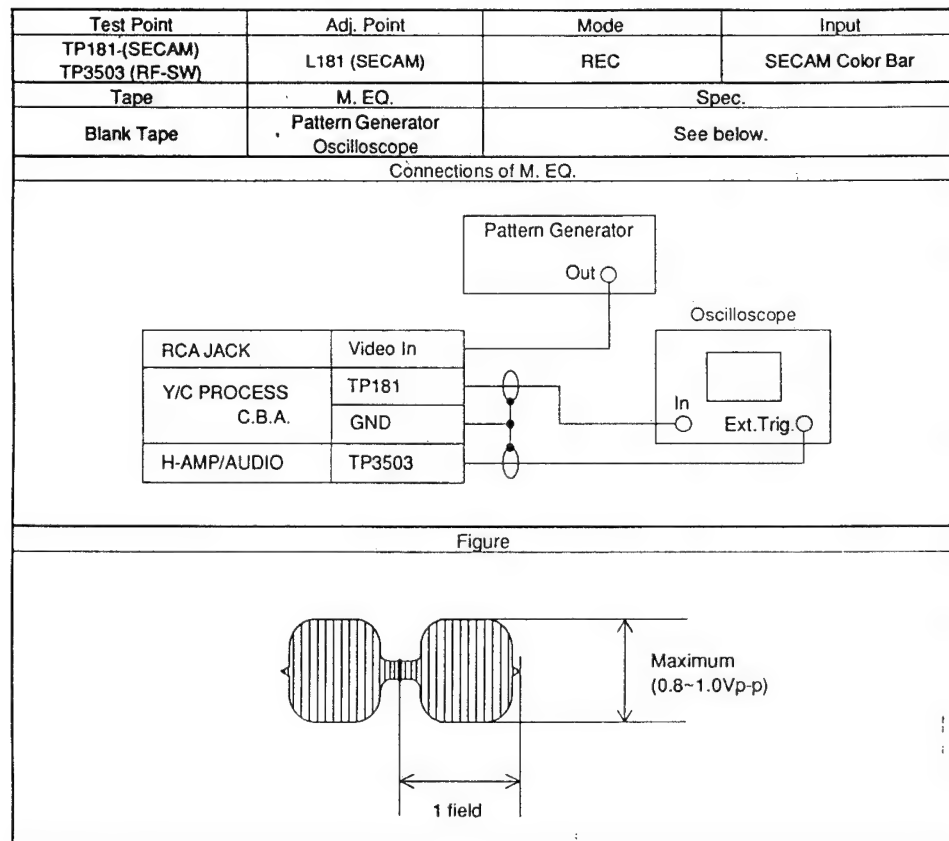
8. SECAM 1/2f TUNE ADJUSTMENT

Purpose:

To detect SECAM Signal Correctly.

Symptom of Misadjustment:

Black and White Picture only appears if SECAM Signal is Low Level.



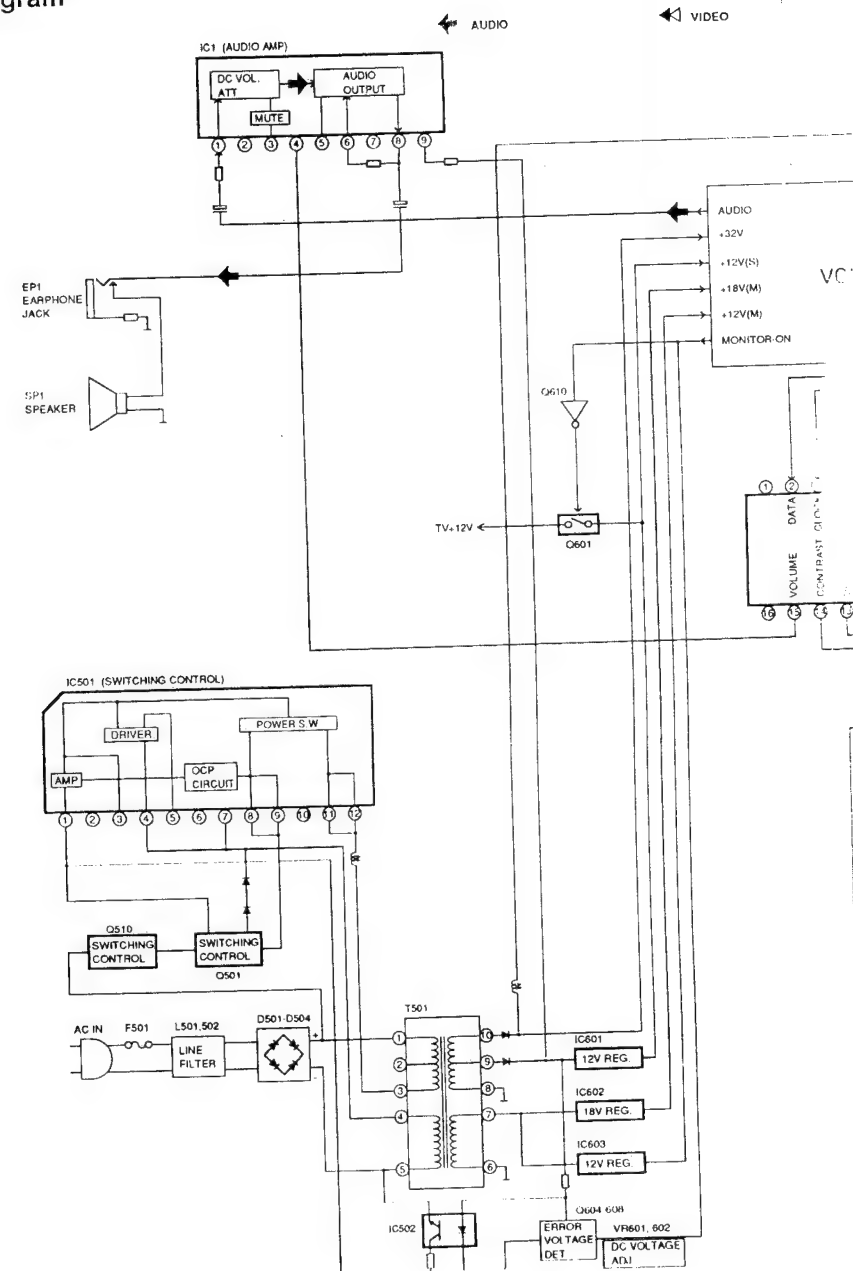
Reference Notes:

TP181, L181 : Y/C PROCESS C.B.A.

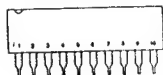
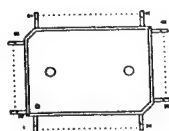
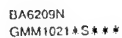
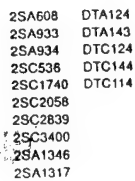
TP3503 : HEAD AMP C.B.A.

1. Connect the equipment as shown in the above table.
2. Input SECAM color bar signal to Video Input.
3. Adjust L181 so that output level becomes maximum.

TV/CRT Block Diagram

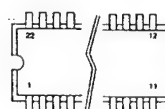
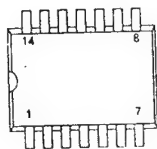
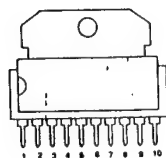


IC AND TRANSISTOR LEAD IDENTIFICATIONS

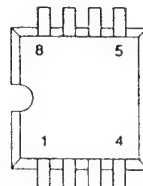
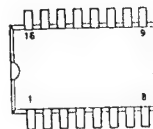
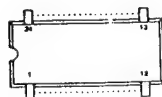


L5631

A: Anode
C: Cathode



LA7320



LC8992
X24C01

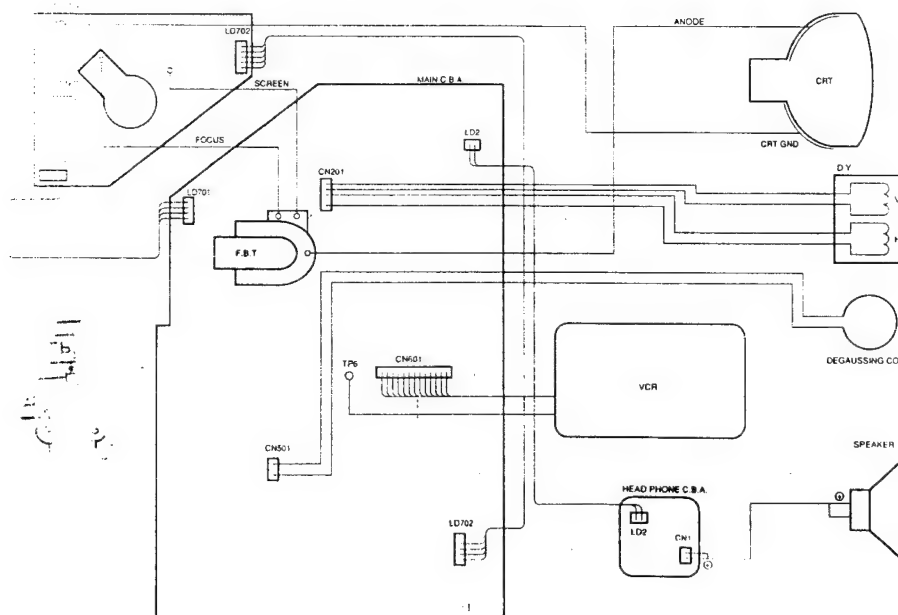
24-1

K2870L

24-2

K2870LE

WIRING DIAGRAM [TV]

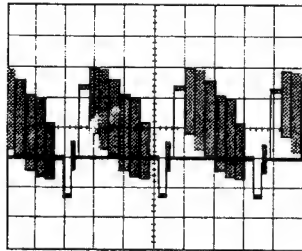


22-1

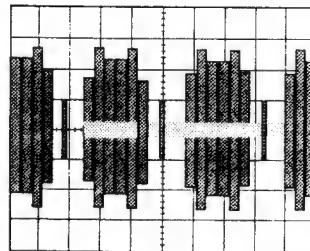
B6-400W1

WAVEFORM PHOTOGRAPHS [TV]

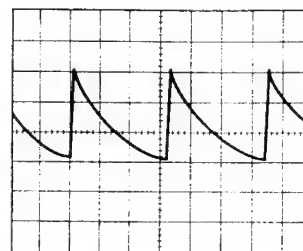
WF1 - WF10 = Waveform Check Points



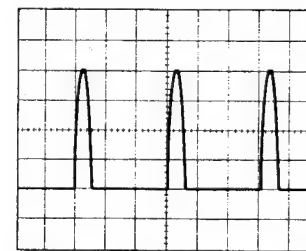
WF1
1 DIV=20 μ s 1 DIV=0.5V



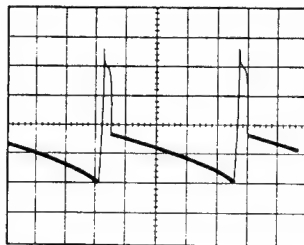
WF2
1 DIV=20 μ s 1 DIV=0.1V



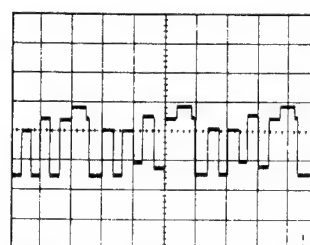
WF3
1 DIV=20 μ s 1 DIV=0.5V



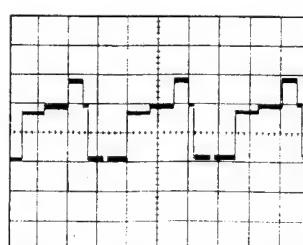
WF4
1 DIV=20 μ s 1 DIV=250V



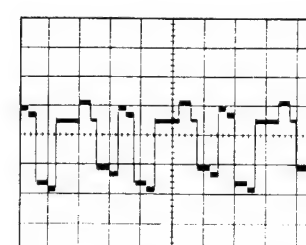
WF5
1 DIV=5ms 1 DIV=10V



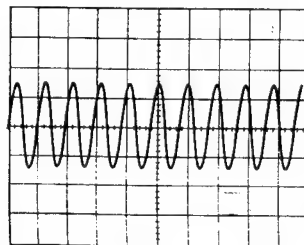
WF6
1 DIV=20 μ s 1 DIV=50V



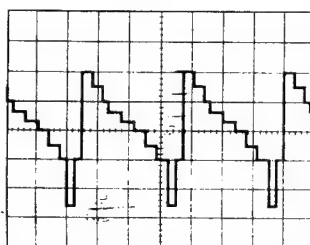
WF7
1 DIV=20 μ s 1 DIV=50V



WF8
1 DIV=20 μ s 1 DIV=50V



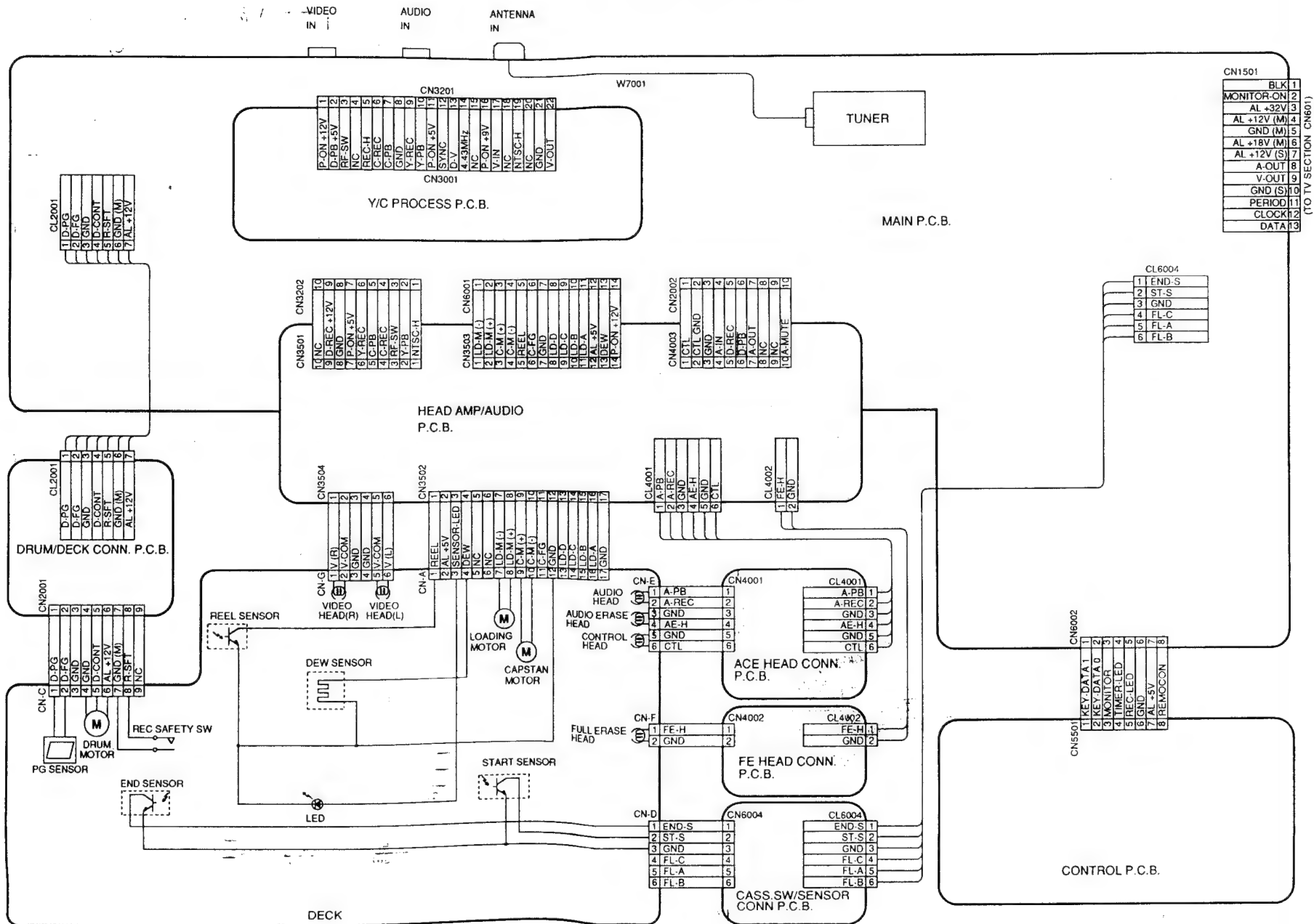
WF9
1 DIV=1ms 1 DIV=2V



WF10
1 DIV=20 μ s 1 DIV=200mV

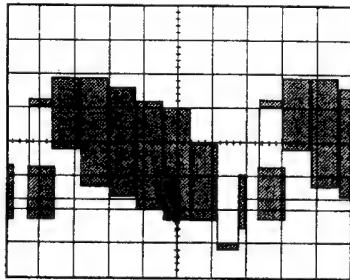
WAVEFORM NOTES:
★ Operation: Input PAL color bar signal
Brightness: Center
Contrast: Center
Color: Center
Tint: Center

WIRING DIAGRAM [VCR]

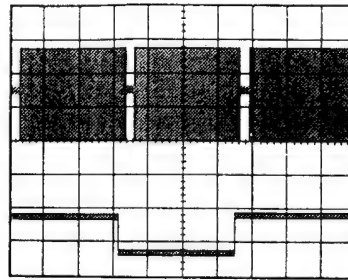


WAVEFORM PHOTOGRAPHS [VCR]

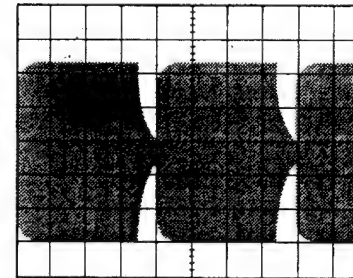
WF1 - WF5 = Waveform Check Points



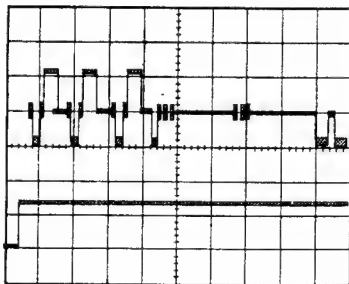
WF1 TP7502 (V-OUT)
1 DIV=10 μ s 1 DIV=0.2V



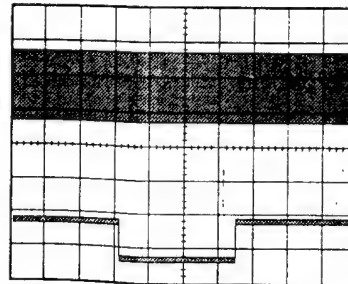
WF3 UPPER:TP3502 (C-REC)
LOWER:TP3503 (RF-SW)
UPPER :1 DIV=5ms 1 DIV=20mV
LOWER :1 DIV=5ms 1 DIV=5.0V



WF 5 TP181 (SECAM)
1 DIV=5ms 1 DIV=0.2V



WF2 UPPER:TP7502 (V-OUT)
LOWER:TP3503 (RF-SW)
UPPER :1 DIV=50 μ s 1 DIV=0.5V
LOWER :1 DIV=50 μ s 1 DIV=5.0V



WF 4 UPPER:TP3504 (C-PB)
LOWER:TP3503 (RF-SW)
UPPER :1 DIV=5ms 1 DIV=0.1V
LOWER :1 DIV=5ms 1 DIV=5.0V

WAVEFORM NOTES:
★ Operation:Input PAL color bar signal
Brightness:Center
Contrast:Center
Color:Center
Tint:Center

Chart 1

1. OFF → CASS.IN → REC → STOP → FF → STOP → REW → STOP → PLAY

TAPE LOADING SWITCH H=1 L=0

LD SW			SYMBOL	POSITION
A	B	C		
L	L	L	EJ	CASSETTE LOADING EJECT
L	H	L	EU	INTERMEDIATE
L	H	H	FR	FF REW
H	H	H	FU	INTERMEDIATE
H	H	L	UN	STOP 2 (POWER OFF POSITION)
L	L	L	LU	TAPE LOADING
L	L	L	ST	STOP 1 (QUICK START POSITION1. GEAR CHANGE)
H	L	L	AU	INTERMEDIATE
H	H	L	AL	PLAY REC PAUSE
L	H	L	FS	INTERMEDIATE
L	L	H	RU	INTERMEDIATE
L	L	H	RS	SHORT REW

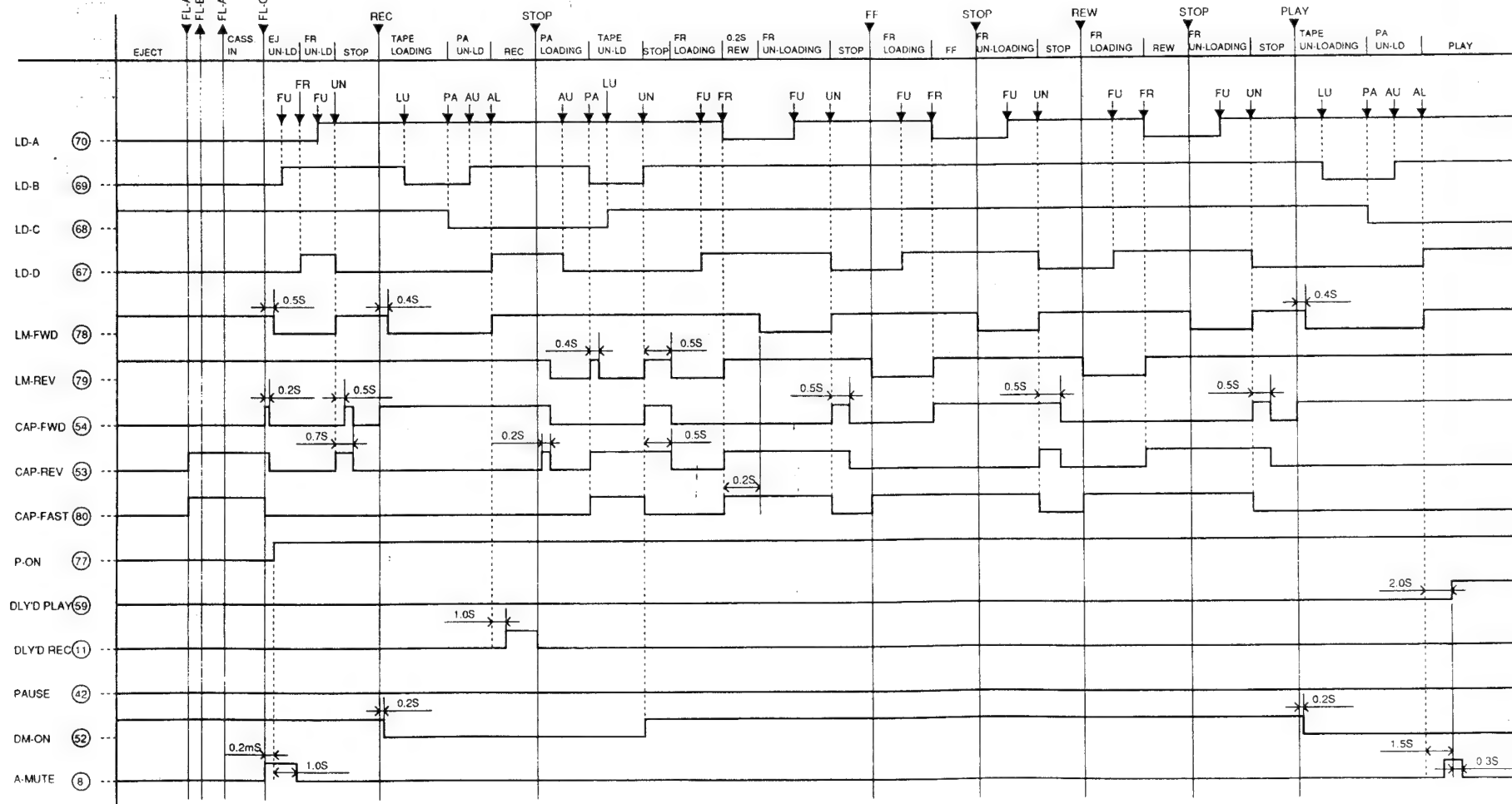
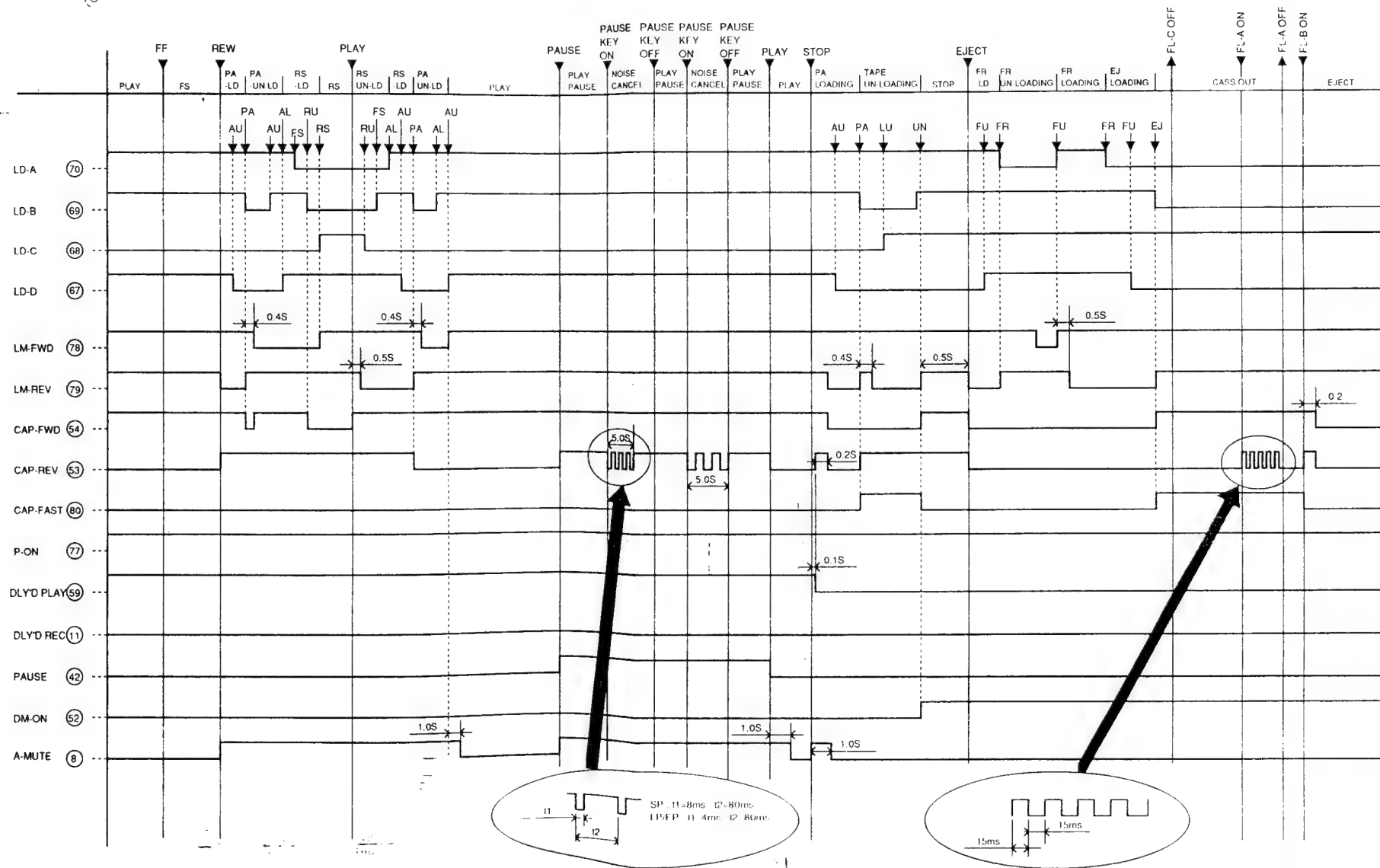


Chart 2

2. PLAY → FF(FS) → REW(RS) → PLAY → PAUSE → NOISE CANCEL → PLAY → STOP → EJECT



IC6001 (SYSTEM CONTROL / TIMER IC)

Note: H ≥ 4.6V, L ≤ 0.5V (Approx.)

Pin No.	In/Out	Signal Name	Function	Active Level
1	OUT	DATA	DAC IC (TV Section) Control Signal (Data)	H
2	OUT	CLOCK	DAC IC (TV Section) Control Signal (Clock)	H
3	OUT	PERIOD	DAC IC (TV Section) Control Signal (Period)	H
4	OUT	AFT-DEF	AFT Defeat Signal	H
5	OUT	BAND VL	Tuner Band Signal (VL Band)	H
6	OUT	BAND VH	Tuner Band Signal (VH Band)	H
7	OUT	BAND U	Tuner Band Signal (U Band)	H
8	OUT	A-MUTE	Audio Mute Signal	H
9	-	NC		
10	OUT	MONITOR	Monitor LED Control	L
11	OUT	D-REC	Video/Audio Recording Instruction	H
12	OUT	NTSC-H	"H" at NTSC Mode	H
13	-	NC		
14	-	NC		
15	-	NC		
16	OUT	BLUE	"H" at Blue Back Mode	H
17	OUT	REC-LED	Record LED Control	H
18	OUT	TIMER-LED	Timer LED Control	H
19	-	NC		
20	-	NC		
21	-	NC		
22	-	NC		
23	-	T5	Key Data Signal Output Port	H
24	-	T4	Not Used	
25	-	T3	Key Data Signal Output Port	H
26	OUT	T2	Key Data Signal Output Port	H
27	OUT	T1	Key Data Signal Output Port	H
28	OUT	T0	Key Data Signal Output Port	H
29	IN	CTL-P	Control Pulse Signal	-
30	OUT	OSC 2 OUT	Crystal Oscillator 32KHz Output	-
31	IN	OSC 2 IN	Crystal Oscillator 32KHz Input	-
32	IN	RESET	Reset at RESET Signal Input "L", Normal at "H"	L
33	-	NC		
34	IN	VDD	Power Source (+5V)	+5V
35	IN	KEY DATA 0	Key Scan Signal Input Port	H
36	IN	KEY DATA 1	Key Scan Signal Input Port	H
37	IN	KEY DATA 2	Key Scan Signal Input Port	H
38	OUT	OSD STB	On-screen IC Control Signal (STB)	-
39	IN	KEY DATA 3	Key Scan Signal Input Port	H
40	IN	KEY DATA 4	Key Scan Signal Input Port	H
41	IN	END-S	Tape End Position Detect	L
42	IN	PAUSE	Play Pause LED Control	H
43	IN	C-FG	Capstan-Freq. Generator	-
44	IN	REEL	Reel Rotation Signal Input	-
45	-	NC		
46	IN	SD	Tuner/Video Sync Signal	L
47	OUT	S-CLK	Servo IC Timing Clock	-
48	OUT	OSD-CLK	On-screen IC Control Signal (Clock)	-

K28701P

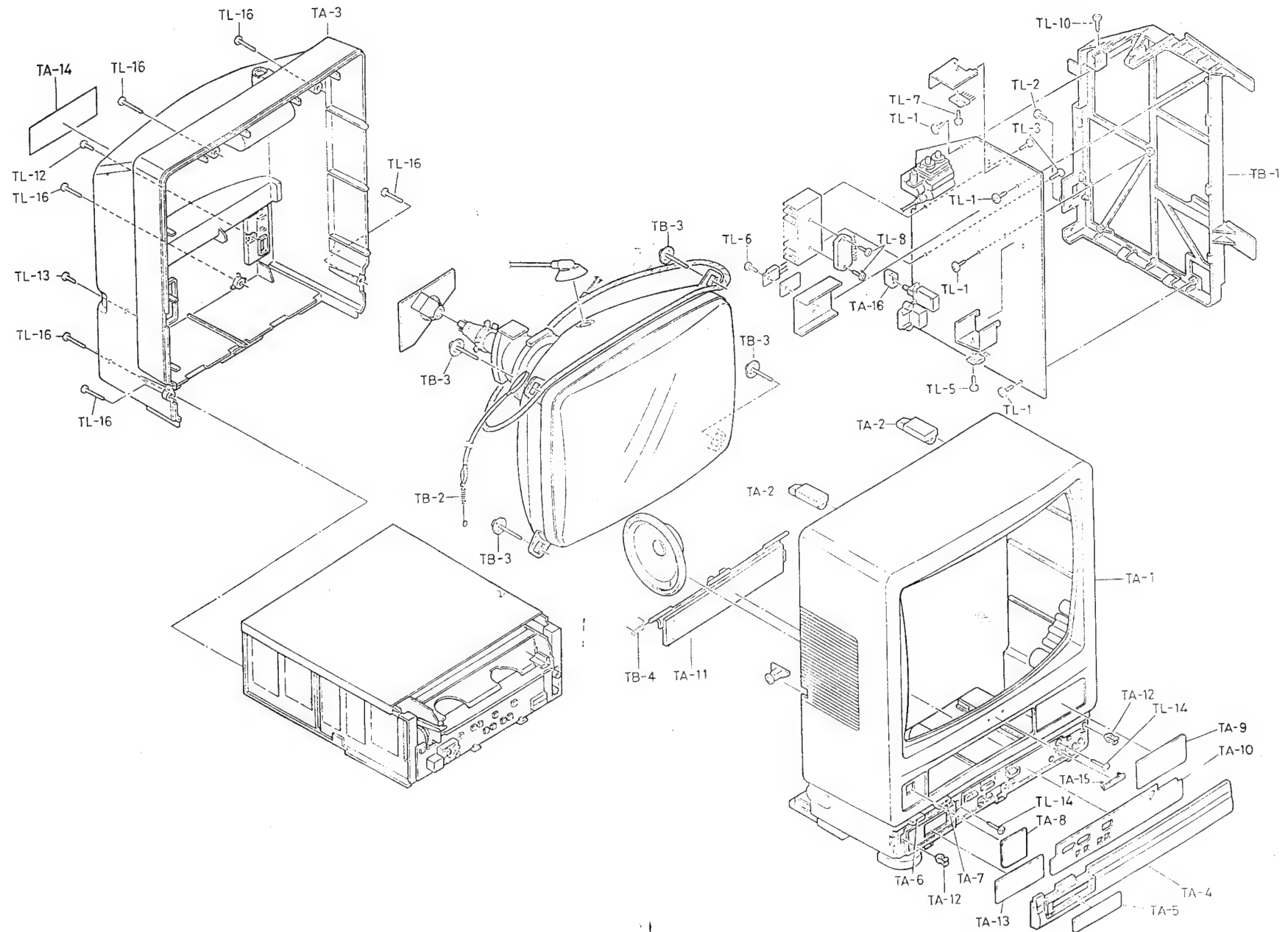
Pin No.	In/Out	Signal Name	Function	Active Level
49	OUT	S-DATA	Servo IC Signal (Data)	-
50	IN/OUT	MON-DATA	Memory IC Data	-
51	OUT	MON-CLK	Memory IC Timing Clock	-
52	OUT	D-ON	Drum Rotate Instruction	L
53	OUT	C-REV	Capstan Motor Reverse Instruction	H
54	OUT	C-FWD	Capstan Motor Forward Instruction	H
55	IN	AFT-DOWN	Tuner AFT Voltage Input, "L" at under 2.5V of AFT Voltage	L
56	IN	AFT-UP	Tuner AFT Voltage Input, "H" at over 5.5V of AFT Voltage	H
57	IN	RF-SW	Radio Frequency Signal Switching Pulse	-
58	IN	OSD-BUSY	On-screen IC Control Signal (Busy)	-
59	OUT	D-PB	Video/Audio Playback Instruction Signal	L
60	OUT	T-DAC	Tuner Tuning Voltage Control Signal	-
61	IN	P-DOWN	"L" at Power Failure, "H" at Normal	L
62	IN	REMOCON	Remote Control Serial Signal Input	-
63	IN	ST-S	Tape Start Position Detection	L
64	IN	FL-C	Cassette In Detector	L
65	IN	FL-B	Cassette Out Detector	L
66	IN	FL-A	Cassette Start Detector	L
67	IN	LD-D	Tape Loading Position Detector	L
68	IN	LD-C	Tape Loading Position Detector	L
69	IN	LD-B	Tape Loading Position Detector	L
70	IN	LD-A	Tape Loading Position Detector	L
71	-	GND	GND	0V
72	IN	OSC 1 IN	Crystal Oscillator 4.19MHz Input	-
73	-	NC		
74	OUT	OSC 1 OUT	Crystal Oscillator 4.19MHz Output	-
75	IN	VDD	Power Source (+5V)	+5V
76	-	GND	GND	0V
77	OUT	P-ON	POWER-ON Control	H
78	OUT	LD-FWD	Tape Loading Instruction	H
79	OUT	LD-REV	Tape Unloading Instruction	H
80	OUT	C-FAST	Capstan Motor High Speed Instruction	H

IC PIN FUNCTION

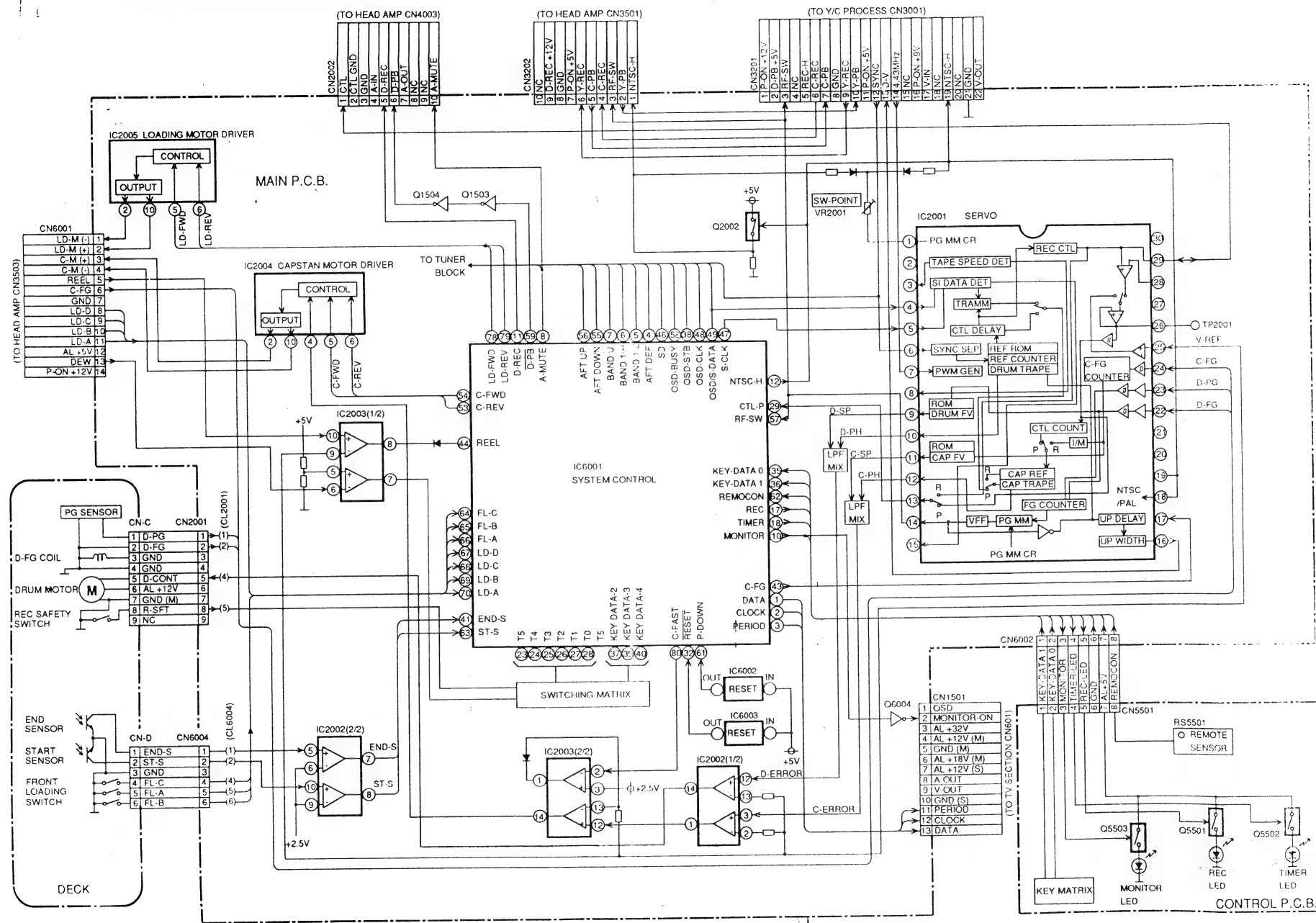
IC101 (D/A CONVERTER IC)

Pin No.	In/Out	Signal Name	Function
1	IN	VCC	Power Source for Interface (+5V)
2	IN	DATA IN	Control Signal (Data) from System Control/Timer IC (VCR)
3	IN	CLOCK	Control Signal (Clock) from System Control/Timer IC (VCR)
4	IN	LOAD (PERIOD)	Control Signal (Period) from System Control/Timer IC (VCR)
5	-	NC	
6	-	NC	
7	-	NC	
8	-	GND	GND
9	-	NC	
10	-	NC	
11	OUT	TINT	Chroma IC Control Signal (TINT)
12	OUT	COLOR	Chroma IC Control Signal (COLOR)
13	OUT	BRIGHT	Chroma IC Control Signal (BRIGHTNESS)
14	OUT	CONTRAST	Chroma IC Control Signal (CONTRAST)
15	OUT	VOLUME	Audio IC Control Signal (VOLUME)
16	IN	VDD	Reference Power Source (+12V)

CABINET EXPLODED VIEW [TV]

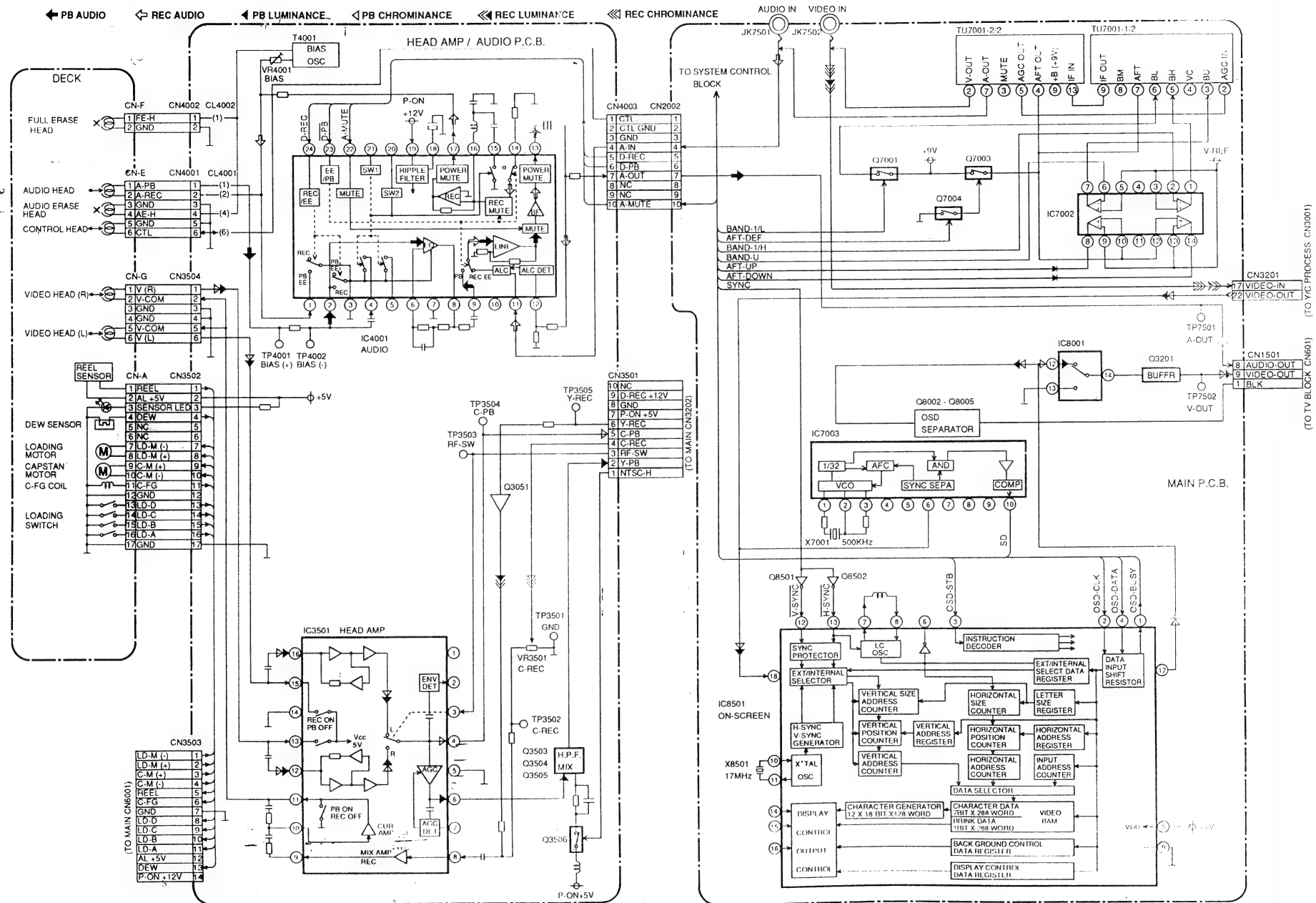


System Control/Servo/Control Block Diagram

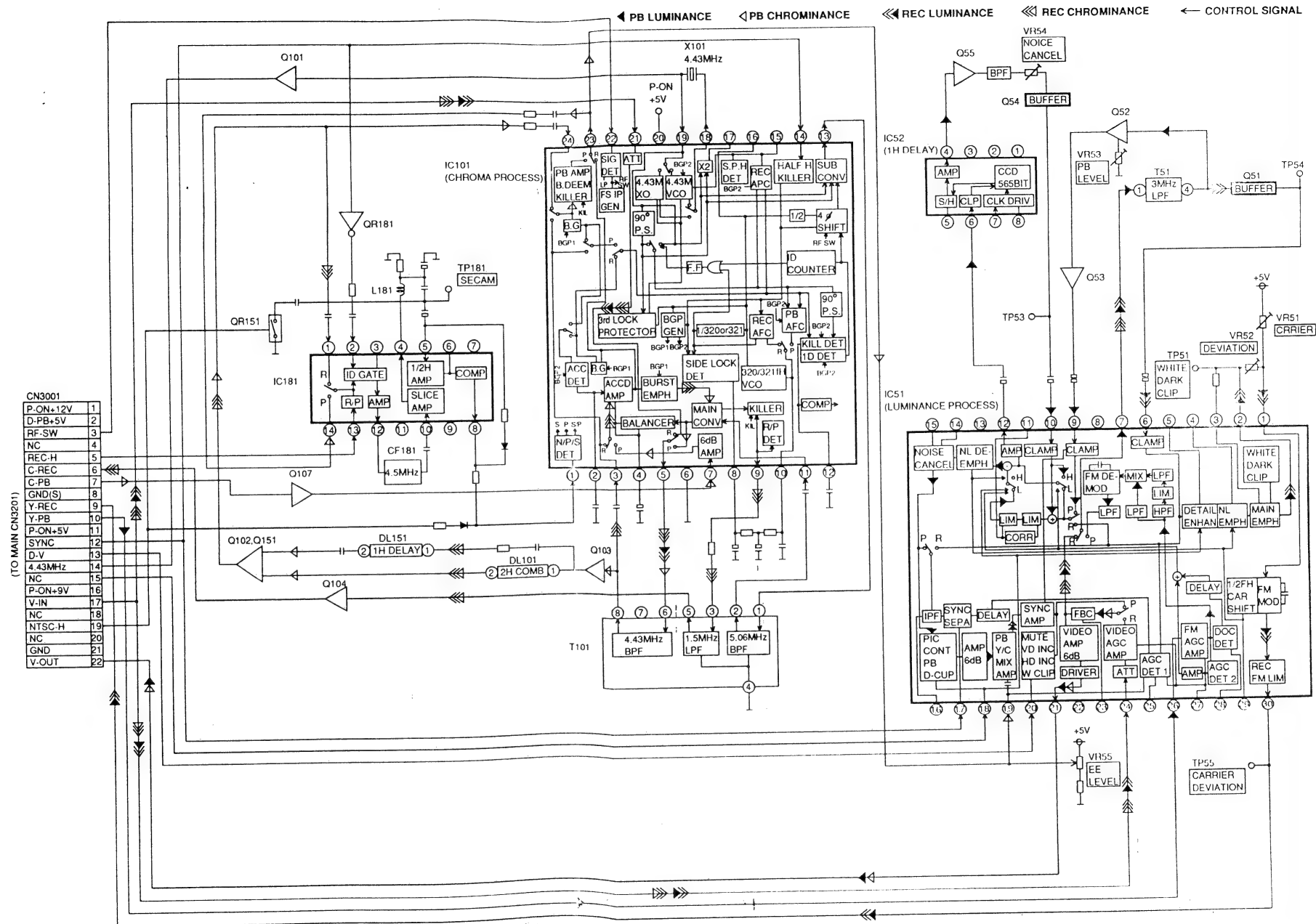


K2870BL-SYS

Head Amp/Audio/Tuner/On-Screen Block Diagram



Y/C Process Block Diagram



Ref. No.	Drawing No.	Description	Q'ty	Part No.
268	3	Spring, Take-up Soft Brake Arm	1	8059-10-06
269	3	Spring, S Soft Brake	1	8059-10-22
270	3	Washer, Polyslider, ø2.1 x ø5 x t0.5	1	9876-00-00
271	3	Spring, Trigger Lever	1	8059-10-23
272	3	Brake Actuate Base Spring	1	8059-10-10
273	3	Brake Plate Spring	1	8059-10-12
281	2	LM Assembly	1	8059-11-301
282	2	Bearing Assembly, Trigger	1	8059-11-302
283	2	Pulley, Loading	1	8059-11-03
284	2	Washer, Polyslider, ø1.6 x ø3.8 x t0.3	1	9743-00-00
285	2	Belt, Loading	1	8059-11-06
286	2	Arm (B), Search	1	8059-11-12
287	2	Washer, Polyslider, ø2.6 x ø6 x t0.5	1	9884-00-00
288	2	Gear, Loading	1	8059-11-04
289	2	Washer, Polyslider, ø2.1 x ø5 x t0.5	1	9876-00-00
290	2	Arm, Brake Actuate	1	8059-11-13
291	2	Arm, Eject Actuate	1	8059-11-14
293	2	Cam, Loading	1	8059-11-01
294	2	Brush, S	1	8059-11-02
295	2	Screw, C-tight, M3 x 4	2	9105-00-00
296	2	Washer, Polyslider, ø2.6 x ø8 x t0.5	1	9999-03-10
312	2	Lever Semi Assembly, Loading	1	8059-12-501
313	2	Roller, Cam	1	8059-12-13
314	2	Plate, Loading Gear	1	8059-12-09
315	2	Collar, Loading Gear Plate	1	8059-12-10
316	2	Screw, C-tight, M3 x 6	1	9203-00-00
317	2	Lever Semi Assembly, Loading Actuate	1	8059-12-502
318	2	Plate, Semi Assembly, Loading Actuate	1	8059-12-503
319	2	Spring, Loading Actuate	1	8059-12-05
320	2	Plate, Loading Lever Reinforce	1	8059-12-11
321	2	Screw, Sems, M2 x 5	2	9078-00-00
322	2	Spring, L Gear Plate	1	8059-12-12
331	2	Screw, C-tight, M2.6 x 5	1	9192-00-00
332	2	Collar	1	8059-06-18
333	2	Lever, REC	1	8059-13-06
334	2	Actuator, REC	1	8059-13-07
335	2	Spoke, REC Actuate	1	8059-13-11
336	2	Sensor, DEW	1	6808-08-04
337	2	Screw, Sems, M2.6 x 4	1	9096-00-00
338	2	Plate Base	1	8059-13-307
339	2	Screw, S-tight (For Camera), M2.6 x 5	1	9803-00-00
341	1	Switch, Leaf	1	6401-01-151
342	1	Screw, C-Tight, M2.6 x 5	1	9192-00-00
343	1	Wire	2	8059-13-08
344	1	Holder, Wire	1	8059-13-10
345	1	Holder Assembly	1	8059-13-306
346	2	Spring, Rec Lever	1	8059-13-14
347	2	Collar, Screw	1	8059-13-17
361	2	Actuator, Eject	1	8059-15-08
362	2	Collar	1	8059-06-18
363	2	Screw, C-tight, M2.6 x 5	1	9192-00-00
364	2	Plate, L Brake	1	8059-15-07
365	2	Collar	1	8059-06-18
366	2	Screw, C-tight, M2.6 x 5	1	9192-00-00
367	2	Arm Assembly, E Idler (Consists of 368-370)	1	8059-15-303
368	2	Arm Semi Assembly, E Idler	1	8059-15-502
369	2	Pulley, Eject	1	8059-15-15
370	2	Washer, Polyslider, ø1.6 x ø3.8 x t0.3	1	9743-00-00
371	2	Spring, Idler Arm	1	8059-15-11

N2NRM554

Ref. No.	Drawing No.	Description	Q'ty	Part No.
372	2	Washer, Polyslider, ø2.1 x ø6 x t0.5	1	9876-00-00
373	2	Belt, Front Loading	1	8059-15-06
390	4	Loading Assembly, Front (Consists of following)	1	8059-16-337
391	4	Bracket Assembly, Cassette Load (Consists of 392-401)	1	8059-16-318
392	4	Clutch Assembly, Front Loading	1	8059-16-319
393	4	P.C.B. Assembly, Front Loading	1	8059-16-320
394	4	Sensor P.C.B. (RM)	1	8059-16-316
395	4	Bracket Semi Assembly, Cassette Load	1	8059-16-506
396	4	Lever, IN SW	1	8059-16-34
397	4	Lever, S SW	1	8059-16-33
398	4	Bearing (A), F Worm	1	8059-16-06
399	4	Washer, Polyslider, ø1.6 x ø3.8 x t0.3	1	9743-00-00
400	4	Screw, Sems, M2.6 x 4	2	9096-00-00
401	4	Screw, Sems, M2 x 5	1	9078-00-00
411	4	Holder Assembly, Cassette (Consists of 412-417)	1	8059-16-306
412	4	Holder, Cassette	1	8000-22-03
413	4	Plate, Slide	1	8000-22-13
414	4	Plate (A), C Lock	1	8000-22-12
415	4	Collar	1	8059-06-18
416	4	Spring, Lock	1	8059-16-29
417	4	Screw, SL (For Camera), M2.6 x 3	1	9968-00-00
420	4	Angle Assembly, Front (Consists of 421-423)	1	8059-16-307
421	4	Angle, Front	1	8059-16-18
422	4	Guide (R), Tape	1	8059-16-25
423	4	Guide (L), Tape	1	8059-16-24
430	4	Plate (R) Assembly, Side (Consists of 431, 434-440)	1	8059-16-308
431	4	Plate (R), Side	1	8059-16-502
432	4	Plate, Cassette Push	1	8059-16-28
433	4	Screw (For Camera), M2.6 x 2	1	9833-00-00
434	4	Lever, Open	1	8000-22-25
435	4	Spring, Open Lever	1	8000-22-44
436	4	Lever Collar, Open	1	8000-22-42
437	4	Screw, SL (For Camera), M2 x 4	1	9967-00-00
438	4	Lever, Lock Release	1	8000-22-16
439	4	Roller, Guide	2	8000-22-75
440	4	Roller, Guide	1	8000-22-23
445	4	Plate (L) Assembly, Side (Consists of 446, 449-453)	1	8059-16-309
446	4	Plate (L), Side	1	8059-16-503
447	4	Plate, Cassette Push	1	8059-16-28
448	4	Screw (For Camera), M2.6 x 2	1	9833-00-00
449	4	Plate (L), C Lock	1	8000-22-66
450	4	Spring (L), Lock Plate	1	8059-16-30
451	4	Collar, Lock Plate	1	8000-19-63
452	4	Screw (For Camera), M2 x 2.5	1	9966-00-00
453	4	Roller, Guide	2	8000-22-75
460	4	Frame (R) Assembly (Consists of 461-462, 466, 470-472)	1	8059-16-339
461	4	Frame (R)	1	8059-16-507
462	4	Wheel Assembly, Worm (Consists of 463-465)	1	8059-16-321
463	4	Wheel, Worm	1	8059-16-36
464	4	Gear, priction	1	8059-16-45
465	4	Spring, Friction	1	8059-16-31
466	4	Gear (R) Assembly, Lift	1	8059-16-312
467	4	Gear (R), Lift	1	8000-22-15
468	4	Arm, Lift	1	8000-22-11
469	4	Spring, LP	1	8000-22-45
470	4	Guide, Open Lever	1	8000-22-26
471	4	Sleeve, Guide	1	8000-22-24
472	4	E Ring S 2.5	2	9504-00-00
480	4	Frame (L) Assembly (Consists of 481-483, 487-491)	1	8059-16-338

N2NRM554

Ref. No.	Description	Part No.
Q304	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
	TR. 2SC1740S(O) (Z) or	2SC1740STPO
Q305	TR. 2SC1740S(R) (Z)	2SC1740STPR
	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
Q306	TR. 2SC1740S(O) (Z) or	2SC1740STPO
	TR. 2SC1740S(R) (Z)	2SC1740STPR
	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
Q308	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
	TR. 2SC1740S(O) (Z) or	2SC1740STPO
	TR. 2SC1740S(R) (Z)	2SC1740STPR
	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
Q501	TR. 2SK212(F) or	2SK212E
	TR. 2SK212(F)E	2SK212E
Q510	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
	TR. 2SC1740S(O) (Z) or	2SC1740STPO
Q601	TR. 2SC1740S(R) (Z)	2SC1740STPR
	TR. 2SB1274(R) or	Q2SB1274R000
	TR. 2SB1274(S)	Q2SB1274S000
Q602	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
	TR. 2SC1740S(O) (Z) or	2SC1740STPO
Q603	TR. 2SC1740S(R) (Z)	2SC1740STPR
	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
Q604	TR. 2SC1740S(O) (Z) or	2SC1740STPO
	TR. 2SC1740S(R) (Z)	2SC1740STPR
	TR. 2SA1318AANP(T) or	2SA1318T-AA-NP
	TR. 2SA1318AANP(U) or	2SA1318U-AA-NP
Q605	TR. 2SA933S(R) (Z) or	2SA933RZ
	TR. 2SA933S(S) (Z)	2SA933SZ
	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
Q606	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
	TR. 2SC1740S(O) (Z) or	2SC1740STPO
	TR. 2SC1740S(R) (Z)	2SC1740STPR
	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
Q607	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
	TR. 2SC1740S(O) (Z) or	2SC1740STPO
	TR. 2SC1740S(R) (Z)	2SC1740STPR
Q608	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
	TR. 2SC1740S(O) (Z) or	2SC1740STPO

Ref. No.	Description	Part No.
O610	TR. 2SC1815GRTP2(GR) or	2SC1815GRTP2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
	TR. 2SC1740S(O) (Z) or	2SC1740STPO
R 3	TR. 2SC1740S(R) (Z)	2SC1740STPR
	RESISTORS	
R 4	CARBON RES. 1KΩ 1/6W	132A102T
R 5	CARBON RES. 10KΩ 1/6W	132A103T
R 6	CARBON RES. 3.3KΩ 1/6W	132A332T
R 7	CARBON RES. 6.8KΩ 1/6W	132A682T
R 8	CARBON RES. 1.2KΩ 1/6W	132A122T
R 9	CARBON RES. 18KΩ 1/6W	132A183T
R 10	CARBON RES. 4.7KΩ 1/4W J	1345479S
R 11	FUSE RES. 2.2Ω 1W or	5363229
R 12	FUSE RES. 2.2Ω 1W	5368229
R101	CARBON RES. 100Ω 1/6W	132A101T
R102	CARBON RES. 68KΩ 1/6W	132A683T
R103	CARBON RES. 82KΩ 1/6W	132A823T
R104	CARBON RES. 180KΩ 1/6W	132A184T
R105	CARBON RES. 4.7KΩ 1/6W	132A472T
R106	CARBON RES. 10KΩ 1/6W	132A103T
R107	CARBON RES. 6.8KΩ 1/6W	132A682T
R108	CARBON RES. 270KΩ 1/6W	132A274T
R109	CARBON RES. 6.8KΩ 1/6W	132A682T
R110	CARBON RES. 2.7KΩ 1/6W	132A272T
R111	CARBON RES. 15KΩ 1/6W	132A153T
R112	CARBON RES. 6.8KΩ 1/6W	132A682T
R113	CARBON RES. 4.7KΩ 1/6W	132A473T
R114	CARBON RES. 22KΩ 1/6W	132A223T
R115	CARBON RES. 6.8KΩ 1/6W	132A682T
R116	CARBON RES. 27KΩ 1/6W	132A273T
R117	CARBON RES. 22KΩ 1/6W	132A223T
R118	CARBON RES. 6.8KΩ 1/6W	132A682T
R119	CARBON RES. 2.2KΩ 1/6W	132A222T
R120	CARBON RES. 2.2KΩ 1/6W	132A222T
R121	CARBON RES. 2.2KΩ 1/6W	132A222T
R122	CARBON RES. 2.2KΩ 1/6W	132A222T
R123	CARBON RES. 1KΩ 1/6W	132A102T
R124	CARBON RES. 22KΩ 1/6W	132A223T
R125	CARBON RES. 2.2KΩ 1/6W	132A222T
R126	CARBON RES. 2.2KΩ 1/6W	132A222T
R127	CARBON RES. 2.2KΩ 1/6W	132A222T
R128	CARBON RES. 2.2KΩ 1/6W	132A222T
R129	CARBON RES. 2.2KΩ 1/6W	132A222T
R130	CARBON RES. 2.2KΩ 1/6W	132A222T
R131	CARBON RES. 2.2KΩ 1/6W	132A222T
R201	CARBON RES. 1.5KΩ 1/4W J	1345152S
R202	CARBON RES. 1.5KΩ 1/4W J	1345152S
R203	CEMENT RES. 3.3KΩ 5W or	RW05332KA006
R204	CEMENT RES. 3.3KΩ 5W	RW05332UB001
R205	CEMENT RES. 3.9KΩ 5W or	RW05392KA006
R206	CEMENT RES. 3.9KΩ 5W	RW05392UB001
R207	FUSE RES. 3.3Ω 1W or	5363339
R208	FUSE RES. 3.3Ω 1W	5368339
R209	CARBON RES. 150KΩ 1/6W	132A154T
R210	CARBON RES. 150KΩ 1/6W or	132A154T
R211	CARBON RES. 150KΩ 1/6W	132A154T

Ref. No.	Description	Part No.
R212	FUSE RES. 2.2Ω 1W or	5363229
R213	FUSE RES. 2.2Ω 1W	5368229
R214	CARBON RES. 10KΩ 1/2W	132A103T
R215	CARBON RES. 82KΩ 1/6W	132A823T
R216	CARBON RES. 10KΩ 1/6W	132A103T
R217	CARBON RES. 33KΩ 1/6W	132A333T
R218	CARBON RES. 1.2KΩ 1/6W	132A122T
R219	CARBON RES. 82KΩ 1/6W	132A823T
R220	CARBON RES. 2.7KΩ 1/6W	132A272T
R221	CARBON RES. 3.3KΩ 1/6W	132A332T
R222	CARBON RES. 1Ω 1/4W J	1345109S
R223	CARBON RES. 1.2Ω 1/4W J	1345129S
R224	CARBON RES. 1KΩ 1/6W	132A102T
R225	CARBON RES. 4.7KΩ 1/6W	534A681
R226	METAL RES. 680Ω 1W	5362680
R227	FUSE RES. 68Ω 1/2W or	5367680
R228	FUSE RES. 68Ω 1/2W	132A820T
R229	CARBON RES. 82Ω 1/6W	132A154T
R230	CARBON RES. 150KΩ 1/6W	132A822T
R231	CARBON RES. 8.2KΩ 1/6W	132A271T
R232	CARBON RES. 270Ω 1/6W	132A272T
R233	CARBON RES. 2.7KΩ 1/6W	132A472T
R234	CARBON RES. 4.7KΩ 1/6W	132A103T
R235	CARBON RES. 2.2KΩ 1/6W	132A222T
R236	CARBON RES. 1KΩ 1/6W	132A102T
R237	CARBON RES. 390Ω 1/6W	132A391T
R238	CARBON RES. 2.2KΩ 1/6W	132A222T
R239	CARBON RES. 330KΩ 1/6W	132A334T
R240	CARBON RES. 33KΩ 1/6W	132A333T
R241	CARBON RES. 15KΩ 1/6W	132A153T
R242	CARBON RES. 1KΩ 1/6W	132A102T
R243	CARBON RES. 1KΩ 1/6W	132A821T
R244	CARBON RES. 1KΩ 1/6W	132A273T
R245	CARBON RES. 27KΩ 1/6W	132A273T
R246	CARBON RES. 1.2KΩ 1/6W	132A122T
R247	CARBON RES. 1.2KΩ 1/6W	132A122T
R248	CARBON RES. 1.2KΩ 1/6W	132A122T
R249	CARBON RES. 1.2KΩ 1/6W	132A122T
R250	CARBON RES. 1.2KΩ 1/6W	132A122T
R251	CARBON RES. 1.2KΩ 1/6W	132A122T
R252	CARBON RES. 1.2KΩ 1/6W	132A122T
R253	CARBON RES. 1.2KΩ 1/6W	132A122T
R254	CARBON RES. 1.2KΩ 1/6W	132A122T
R255	CARBON RES. 1.2KΩ 1/6W	132A122T
R256	CARBON RES. 1.2KΩ 1/6W	132A122T
R257	CARBON RES. 1.2KΩ 1/6W	132A122T
R258	CARBON RES. 1.2KΩ 1/6W	132A122T
R259	CARBON RES. 1.2KΩ 1/6W	132A122T
R260	CARBON RES. 1.2KΩ 1/6W	132A122T
R261	CARBON RES. 1.2KΩ 1/6W	132A122T
R262	CARBON RES. 1.2KΩ 1/6W	132A122T
R263	CARBON RES. 1.2KΩ 1/6W	132A122T
R264	CARBON RES. 1.2KΩ 1/6W	132A122T
R265	CARBON RES. 1.2KΩ 1/6W	132A122T
R266	CARBON RES. 1.2KΩ 1/6W	132A122T
R267	CARBON RES. 1.2KΩ 1/6W	132A122T
R268	CARBON RES. 1.2KΩ 1/6W	132A122T
R269	CARBON RES. 1.2KΩ 1/6W	132A122T
R270	CARBON RES. 1.2KΩ 1/6W	132A122T
R271	CARBON RES. 1.2KΩ 1/6W	132A122T
R272	CARBON RES. 1.2KΩ 1/6W	132A122T
R273	CARBON RES. 1.2KΩ 1/6W	132A122T
R274	CARBON RES. 1.2KΩ 1/6W	132A122T
R275	CARBON RES. 1.2KΩ 1/6W	132A122T
R276	CARBON RES. 1.2KΩ 1/6W	132A122T
R277	CARBON RES. 1.2KΩ 1/6W	132A122T
R278	CARBON RES. 1.2KΩ 1/6W	132A122T
R279	CARBON RES. 1.2KΩ 1/6W	132A122T
R280	CARBON RES. 1.2KΩ 1/6W	132A122T
R281	CARBON RES. 1.2KΩ 1/6W	132A122T
R282	CARBON RES. 1.2KΩ 1/6W	132A122T
R283	CARBON RES. 1.2KΩ 1/6W	132A122T
R284	CARBON RES. 1.2KΩ 1/6W	132A122T
R285	CARBON RES. 1.2KΩ 1/6W	132A122T
R286	CARBON RES. 1.2KΩ 1/6W	132A122T
R287	CARBON RES. 1.2KΩ 1/6W	132A122T
R288	CARBON RES. 1.2KΩ 1/6W	132A122T
R289	CARBON RES. 1.2KΩ 1/6W	132A122T
R290	CARBON RES. 1.2KΩ 1/6W	132A122T
R291	CARBON RES. 1.2KΩ 1/6W	132A122T
R292	CARBON RES. 1.2KΩ 1/6W	132A122T
R293	CARBON RES. 1.2KΩ 1/6W	132A122T
R294	CARBON RES. 1.2KΩ 1/6W	132A122T
R295	CARBON RES. 1.2KΩ 1/6W	132A122T
R296	CARBON RES. 1.2KΩ 1/6W	132A122T
R297	CARBON RES. 1.2KΩ 1/6W	132A122T
R298	CARBON RES. 1.2KΩ 1/6W	132A122T
R299	CARBON RES. 1.2KΩ 1/6W	132A122T
R300	CARBON RES. 1.2KΩ 1/6W	132A122T
R301	CARBON RES. 1.2KΩ 1/6W	132A122T
R302	CARBON RES. 1.2KΩ 1/6W	132A122T
R303	CARBON RES. 1.2KΩ 1/6W	132A122T
R304	CARBON RES. 1.2KΩ 1/6W	132A122T
R305	CARBON RES. 1.2KΩ 1/6W	132A122T
R306	CARBON RES. 1.2KΩ 1/6W	132A122T
R307	CARBON RES. 1.2KΩ 1/6W	132A122T
R308	CARBON RES. 1.2KΩ 1/6W	132A122T
R309	CARBON RES. 1.2KΩ 1/6W	132A122T
R310	CARBON RES. 1.2KΩ 1/6W	132A122T
R311	CARBON RES. 1.2KΩ 1/6W	132A122T
R312	CARBON RES. 1.2KΩ 1/6W	132A122T
R313	CARBON RES. 1.2KΩ 1/6W	132A122T
R314	CARBON RES. 1.2KΩ 1/6W	132A122T
R315	CARBON RES. 1.2KΩ 1/6W	132A122T
R316	CARBON RES. 1.2KΩ 1/6W	132A122T
R317	CARBON RES. 1.2KΩ 1/6W	132A122T
R318	CARBON RES. 1.2KΩ 1/6W	132A122T
R319	CARBON RES. 1.2KΩ 1/6W	132A122T
R320	CARBON RES. 1.2KΩ 1/6W	132A122T
R321	CARBON RES. 1.2KΩ 1/6W	132A122T
R322	CARBON RES. 1.2KΩ 1/6W	132A122T
R323	CARBON RES. 1.2KΩ 1/6W	132A122T
R324	CARBON RES. 1.2KΩ 1/6W	132A122T
R325	CARBON RES. 1.2KΩ 1/6W	132A122T
R326	CARBON RES. 1.2KΩ 1/6W	132A122T
R327	CARBON RES. 1.2KΩ 1/6W	132A122T
R328	CARBON RES. 1.2KΩ 1/6W	132A122T
R329	CARBON RES. 1.2KΩ 1/6W	132A122T
R330	CARBON RES. 1.2KΩ 1/6W	132A122T
R331	CARBON RES. 1.2KΩ 1/6W	132A122T
R332	CARBON RES. 1.2KΩ 1/6W	132A122T
R333	CARBON RES. 1.2KΩ 1/6W	132A122T
R334	CARBON RES. 1.2KΩ 1/6W	132A122T
R335	CARBON RES. 1.2KΩ 1/6W	132A122T
R336	CARBON RES. 1.2KΩ 1/6W	132A122T
R337	CARBON RES. 1.2KΩ 1/6W	132A122T
R338	CARBON RES. 1.2KΩ 1/6W	132A122T
R339	CARBON RES. 1.2KΩ 1/6W	132A122T
R340	CARBON RES. 1.2KΩ 1/6W	132A122T
R341	CARBON RES. 1.2KΩ 1/6W	132A122T
R342	CARBON RES. 1.2KΩ 1/6W	132A122T
R343	CARBON RES. 1.2KΩ 1/6W	132A122T
R344	CARBON RES. 1.2KΩ 1/6W	132A122T
R345	CARBON RES. 1.2KΩ 1/6W	132A122T
R346	CARBON RES. 1.2KΩ 1/6W	132A122T
R347	CARBON RES. 1.2KΩ 1/6W	132A122T
R348	CARBON RES. 1.2KΩ 1/6W	132A122T
R349	CARBON RES. 1.2KΩ 1/6W	132A122T
R350	CARBON RES. 1.2KΩ 1/6W	132A122T

Ref. No.	Description	Part No.
R351	CARBON RES. 3.9KΩ 1/6W	132A392T
R355	CARBON RES. 18KΩ 1/6W	132A183T
R356	CARBON RES. 470Ω 1/6W	132A471T
R357	CARBON RES. 22KΩ 1/6W	132A223T
R359	CARBON RES. 1KΩ 1/6W	132A102T
R360	CARBON RES. 1.8KΩ 1/6W	132A182T
R361	CARBON RES. 8.2KΩ 1/6W	132A822T
R362	CARBON RES. 47KΩ 1/6W	132A473T
R363	CARBON RES. 75Ω 1/6W	132A750T
R364	CARBON RES. 1.5KΩ 1/6W	132A152T
R365	CARBON RES. 1.5KΩ 1/6W	132A152T
R366	CARBON RES. 270Ω 1/6W	132A271T
R367	CARBON RES. 8.2KΩ 1/6W	132A822T
R369	CARBON RES. 4.7KΩ 1/6W	132A472T
R371	CARBON RES. 470Ω 1/6W	132A471T
R372	CARBON RES. 4.7KΩ 1/6W	132A472T
R374	CARBON RES. 470Ω 1/6W	132A471T
R501	CEMENT RES. 1Ω 5W or CEMENT RES. 1Ω 5W	RW051R0KA004 RW051R0UB004
R502	CARBON RES. 1MΩ 1/4W J	1345105S
R503	METAL RES. 47KΩ 2W	534B473
R504	CARBON RES. 330Ω 1/4W J	1345331S
R505	CARBON RES. 1.2KΩ 1/4W J	1345122S
R506	CARBON RES. 330Ω 1/6W	132A331T
R508	CARBON RES. 2.2KΩ 1/4W J	1345222S
R513	CEMENT RES. 0.47Ω 5W or CEMENT RES. 0.47Ω 5W or CEMENT RES. 0.47Ω 5W	RW05R47KA006 RW05R47UB001 RW05R47PG001
R514	CARBON RES. 56Ω 1/4W J	134556CS
R515	CARBON RES. 3.3MΩ 1/4W J	1345335S
R516	CARBON RES. 1MΩ 1/4W J	1345105S
R517	CARBON RES. 10KΩ 1/6W	132A103T
R518	CARBON RES. 1.2MΩ 1/4W J	1345125S
R519	CARBON RES. 1MΩ 1/4W J	1345105S
R520	CARBON RES. 330KΩ 1/6W	132A334T
R601	METAL RES. 10Ω 2W	534B100
R602	METAL RES. 0.68Ω 1W	534A688
R603	METAL RES. 12KΩ 3W	534C123
R606	METAL RES. 10Ω 2W	534B100
R607	CARBON RES. 10KΩ 1/6W	132A103T
R608	CARBON RES. 2.2KΩ 1/4W J	1345222S
R610	METAL RES. 10Ω 2W	534B100
R612	CARBON RES. 4.7KΩ 1/6W	132A472T
R613	CARBON RES. 27KΩ 1/6W	132A273T
R614	CARBON RES. 10KΩ 1/6W	132A103T
R615	CARBON RES. 10KΩ 1/6W	132A103T
R616	CARBON RES. 15KΩ 1/6W	132A153T
R617	CARBON RES. 1KΩ 1/6W	132A102T
R618	CARBON RES. 3.9KΩ 1/6W	132A392T
R619	CARBON RES. 10KΩ 1/6W	132A103T
R620	CARBON RES. 6.8KΩ 1/6W	132A682T
R621	CARBON RES. 33KΩ 1/6W	132A333T
R622	CARBON RES. 100KΩ 1/6W	132A104T
R623	CARBON RES. 3.9KΩ 1/6W	132A392T
R625	CARBON RES. 6.8KΩ 1/6W	132A682T
R627	CARBON RES. 33KΩ 1/4W J	1345333S
R628	CARBON RES. 27KΩ 1/4W J	1345273S
R629	CARBON RES. 33KΩ 1/6W	132A333T
R630	CARBON RES. 56KΩ 1/6W	132A563T
R631	CARBON RES. 1KΩ 1/6W	132A102T

Ref. No.	Description	Part No.
C230	*MYLAR CAP. 0.0027µF/50V	6250272
C301	CERAMIC CAP. 180pF/50V CH	12CH181S
C302	CERAMIC CAP. 180pF/50V CH	12CH181S
C303	CERAMIC CAP. 180pF/50V CH	12CH181S
C304	CERAMIC CAP. 7pF/50V CH	12CH709S
C305	ELECTROLYTIC CAP. 1µF/50V	126F105S
C306	ELECTROLYTIC CAP. 220µF/16V	626C227S
C307	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C308	CERAMIC CAP. 0.01µF/50V FZ	12Y2563
C309	CERAMIC CAP. 0.056µF/25V (K)	12CH809S
C310	CERAMIC CAP. 8pF/50V CH	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C311	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C312	ELECTROLYTIC CAP. 10µF/50V	126F106S
C313	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C314	ELECTROLYTIC CAP. 0.47µF/50V	126F474S
C315	CERAMIC CAP. 180pF/50V CH	12CH181S
C316	CERAMIC CAP. 18pF/50V SL	1270180S
C319	SEMICONDUCTOR CAP. 0.056µF/25V K	12Y2563S
C320	SEMICONDUCTOR CAP. 0.1µF/25V K	12Y2104S
C321	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C322	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C323	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C324	ELECTROLYTIC CAP. 2.2µF/50V NP	126X225S
C327	SEMICONDUCTOR CAP. 0.056µF/25V K	12Y2563S
C328	CERAMIC CAP. 27pF/50V CH	12CH270S
C329	CERAMIC CAP. 33pF/50V CH	12CH330S
C330	ELECTROLYTIC CAP. 1µF/50V	126F105S
C331	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C332	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C333	CERAMIC CAP. 0.0027µF/50V YB or	12B3272S
	CERAMIC CAP. 0.0027µF/50V X	3X4C272T
C334	ELECTROLYTIC CAP. 0.47µF/50V NP	126X474S
C335	CERAMIC CAP. 220pF/50V CH	12CH221S
C336	ELECTROLYTIC CAP. 3.3µF/50V	126F335S
C337	*MYLAR CAP. 0.022µF/50V	1250223S
C338	SEMICONDUCTOR CAP. 0.022µF/25V K	12Y2223S
C339	SEMICONDUCTOR CAP. 0.022µF/25V K	12Y2223S
C340	CERAMIC CAP. 220pF/50V YB or	12B3221S
	CERAMIC CAP. 220pF/50V YB	3B4C2221T
C341	ELECTROLYTIC CAP. 10µF/50V	126F106S
C342	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C343	ELECTROLYTIC CAP. 0.47µF/50V	126F474
C344	ELECTROLYTIC CAP. 0.47µF/50V	126F474
C345	ELECTROLYTIC CAP. 0.47µF/50V	126F474
C346	ELECTROLYTIC CAP. 0.47µF/50V NP	126X474S
C347	ELECTROLYTIC CAP. 10µF/50V	126F106S
C348	ELECTROLYTIC CAP. 0.47µF/50V NP	126X474S
C349	ELECTROLYTIC CAP. 0.47µF/50V NP	126X474S
C350	ELECTROLYTIC CAP. 47µF/50V	126F476S

Ref. No.	Description	Part No.
C351	CERAMIC CAP. 0.01µF/50V FZ or	12F3103S
	CERAMIC CAP. 0.01µF/50V FZ	3F45103S
C352	SEMICONDUCTOR CAP. 0.1µF/25V K	12Y2104S
C353	ELECTROLYTIC CAP. 2.2µF/50V	126F225S
C355	ELECTROLYTIC CAP. 10µF/50V	126F106S
C356	SEMICONDUCTOR CAP. 0.1µF/25V K	12Y2104S
C357	ELECTROLYTIC CAP. 10µF/50V	126F106S
C358	SEMICONDUCTOR CAP. 0.1µF/25V K	12Y2104S
C359	CERAMIC CAP. 180pF/50V CH	12CH181S
C362	ELECTROLYTIC CAP. 100µF/16V	126C107S
C364	ELECTROLYTIC CAP. 10µF/50V	126F106S
C365	SEMICONDUCTOR CAP. 0.056µF/25V K	12Y2563S
C366	CERAMIC CAP. 33pF/50V SL	1270330S
C367	SEMICONDUCTOR CAP. 0.022µF/50V Z	1294223S
C501	LINE ACROSS 0.1µF/250V or	1220756
	LINE ACROSS 0.1µF/250V	1222181
C502	LINE ACROSS 0.1µF/250V or	CT2E104KF005
	LINE ACROSS 0.1µF/250V	1220756
	LINE ACROSS 0.1µF/250V	1222181
C505	CERAMIC CAP. 0.0047µF AC125V or	CT2E104KF005
	CERAMIC CAP. 0.0047µF AC125V	6220353
C506	CERAMIC CAP. 0.0047µF AC125V or	CCG2H2P0Z472
	CERAMIC CAP. 0.0047µF AC125V	6220353
C507	CERAMIC CAP. 0.0047µF AC125V or	CCG2H2P0Z472
	CERAMIC CAP. 0.0047µF AC125V	6220353
C508	CERAMIC CAP. 0.0047µF AC125V or	CCG2H2P0Z472
	CERAMIC CAP. 0.0047µF AC125V	6220353
C509	ELECTROLYTIC CAP. 150µF/400V or	1220891
	ELECTROLYTIC CAP. 150µF/400V	1220693
	ELECTROLYTIC CAP. 150µF/400V or	1227020
	ELECTROLYTIC CAP. 150µF/400V	122738
C510	CERAMIC CAP. 0.01µF/1KV or	CCD3AKP0B103
	CERAMIC CAP. 0.01µF/1KV	6220358
C513	*MYLAR CAP. 0.0022µF/50V	1250222S
C514	*MYLAR CAP. 0.0022µF/50V	1250823S
C515	CERAMIC CAP. 2200pF/50V YB	12B3222S
C517	ELECTROLYTIC CAP. 470µF/10V	126B477S
C518	CERAMIC CAP. 0.001µF/1KV or	CCD3AKP0B102
	CERAMIC CAP. 0.001µF/1KV	6220574
C519	CERAMIC CAP. 56pF/50V SL	1270560S
C520	*MYLAR CAP. 0.1µF/400V or	CMA2HKD00104
	*MYLAR CAP. 0.1µF/400V	CT2H104NC001
	*MYLAR CAP. 0.1µF/400V or	CT2H104MS009
	*MYLAR CAP. 0.1µF/400V	CCN2HP0E222
C521	CERAMIC CAP. 0.0022µF/4KV or	1222011
	CERAMIC CAP. 0.0022µF/4KV	126B477S
C523	ELECTROLYTIC CAP. 470µF/10V	126B476S
C524	ELECTROLYTIC CAP. 47µF/10V	CCD3AKP0B471
C602	CERAMIC CAP. 470pF/1KV or	6220487
	CERAMIC CAP. 470pF/1KV	6222737
C603	ELECTROLYTIC CAP. 100µF/160V	1222336
C605	ELECTROLYTIC CAP. 47µF/160V or	CE2CMZDDL470
	ELECTROLYTIC CAP. 47µF/160V	CE2CMZNTL470
C606	CERAMIC CAP. 1000pF/50V YB or	12B3102S
	CERAMIC CAP. 1000pF/50V YB	3B42102T
C607	CERAMIC CAP. 1000pF/50V YB or	12B3102S
	CERAMIC CAP. 1000pF/50V YB	3B42102T
C608	ELECTROLYTIC CAP. 4700µF/25V or	CE1EMZNTL472
	ELECTROLYTIC CAP. 4700µF/25V	626D478

Ref. No.	Description	Part No.
C609	ELECTROLYTIC CAP. 2200µF/25V or	CE1EMZNTL222
	ELECTROLYTIC CAP. 2200µF/25V	626D228
C610	ELECTROLYTIC CAP. 470µF/16V or	CE1CMZNTL471
	ELECTROLYTIC CAP. 470µF/16V	626C477
C611	CERAMIC CAP. 1000pF/50V YB or	12B3102S
	CERAMIC CAP. 1000pF/50V YB	3B42102T
C612	CERAMIC CAP. 1000pF/50V YB or	12B3102S
	CERAMIC CAP. 1000pF/50V YB	3B42102T
C613	ELECTROLYTIC CAP. 4700µF/25V or	CE1EMZNTL472
	ELECTROLYTIC CAP. 4700µF/25V	626D478
C614	ELECTROLYTIC CAP. 470µF/25V or	CE1EMZNTL471
	ELECTROLYTIC CAP. 470µF/25V	626D477
C615	ELECTROLYTIC CAP. 330µF/10V	126B337S
C616	ELECTROLYTIC CAP. 470µF/16V or	CE1CMZNTL471
	ELECTROLYTIC CAP. 470µF/16V	626C477
C617	CERAMIC CAP. 1000pF/50V YB or	12B3102S
	CERAMIC CAP. 1000pF/50V YB	3B42102T
DIODES		
D102	DIODE MTZ5.1BT	MTZ5.1BT
D103	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D104	DIODE MTZ5.6BT	MTZ5.6BT
D201	DIODE ERB44-08 L3	AERB4408L300
D203	DIODE ERB44-08 L3	AERB4408L300
D204	DIODE 1SS130T	1SS130T
D205	DIODE AERA15C2KFRB	QDNZ0ERA1502
D206	DIODE ERB44-08 L3	AERB4408L300
D301	DIODE MTZ7.5BT	MTZ7.5BT
D302	DIODE MTZ9.1BT	MTZ9.1BT
D303	DIODE MTZ12.6T	MTZ12.6T
D304	DIODE MTZ29.1BT	MTZ29.1BT
D501	DIODE ERC04-10 L3	QDDZ0ERC0410
D502	DIODE ERC04-10 L3	QDDZ0ERC0410
D503	DIODE ERC04-10 L3	QDDZ0ERC0410
D504	DIODE ERC04-10 L3	QDDZ0ERC0410
D505	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D506	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D507	DIODE ERB44-06 L3	AERB4406L300
D508	DIODE ERB44-06 L3	AERB4406L300
D601	DIODE ERD38-06 L	AERD3806L000
D603	DIODE ERD32-02 L	AERD3202L000
D604	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D605	DIODE ERD32-02 L	AERD3202L000
D606	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D607	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D608	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D609	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D610	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D611	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D612	DIODE 1SS130T	1SS130T
D613	DIODE MTZ6.8BT	MTZ6.8BT

Ref. No.	Description	Part No.
D614	DIODE R2M or	QDD20000R2M
	DIODE EGB01-150	AEOB01150000
D620	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
D621	DIODE 1SS176TPA7 or	1SS176TPA7
	DIODE 1SS133T	1SS133T
ICS		
IC 1	ICAN5265	14LN160
IC101	IC µPD6326C	14DV727
IC202	IC LA7830	14LO163
IC301	IC TA8759AN	GTAB759AN
IC501	IC STK73907	GSTK73907000
IC502	PHOTO COUPLER PS2651 or	QPE200PS2651
	PHOTO COUPLER PC-113AB	OPE1000PC113
IC601	IC AN7812 or	AN7812
	IC AN7812F	AN7812F
IC602	IC AN7818 or	AN7818
	IC AN7818F	AN7818F
IC603	IC AN7812 or	AN7812
	IC AN7812F	AN7812F
COILS		
L201	POT TYPE COIL 4.7mH	117M957
L203	POT TYPE COIL 47µH	117M511
L301	CASING COIL (R-Y B-Y)	113M872
L302	CASING COIL (R-Y B-Y)	113M872
L303	CASING COIL (PAL ADJ.)	113M855
L304	MICRO INDUCTOR 8.2µH or	2165829T
	MICRO INDUCTOR 8.2µH	2162923T
L305	CASING COIL (BEL FILTER)	113M873
L306	MICRO INDUCTOR 47µH or	2165829T
	MICRO INDUCTOR 47µH	2162470T
L308	CASING COIL (IDENT)	113M871
L311	DELAY LINE or	113M852
	DELAY LINE	LF810VCSF001
L501	LINE FILTER or	LLB600ZMS008
	LINE FILTER	LLB600ZBW007
L502	LINE FILTER or	LLB600ZMS008
	LINE FILTER	LLB600ZBW007
L601	POT TYPE COIL 47µH	117M511
L602	POT TYPE COIL 47µH	117M511
TRANSISTORS		
Q 1	TR. 2SC1815GRTPE2 (GR) or	2SC1815GRTPE2
	TR. 2SC3331TNPAA(T) or	2SC3331TNPAA
	TR. 2SC3331UNPAA(U) or	2SC3331UNPAA
	TR. 2SC1740S(O) (Z) or	2SC1740STPO
	TR. 2SC1740S(R) (Z)	2SC1740STPR
Q201	TR. 2SC2271AEMP(D) or	2SC2271D-AE-MP
	TR. 2SC2271AEMP(E)	2SC2271E-AE-MP
Q202	TRANSISTOR 2SD1397	Q2SD1397CA
Q302	TR. 2SA1318AANP(T) or	2SA1318T-AA-NP
	TR. 2SA1318AANP(U) or	2SA1318U-AA-NP
	TR. 2SA933S(R) (Z) or	2SA933RZ
	TR. 2SA933S(S) (Z)	2SA933SZ
Q303	TR. 2SA1318AANP(T) or	2SA1318T-AA-NP
	TR. 2SA1318AANP(U) or	2SA1318U-AA-NP
	TR. 2SA933S(R) (Z) or	2SA933RZ
	TR. 2SA933S(S) (Z)	2SA933SZ

Ref. No.	Drawing No.	Description	Q'ty	Part No.
481	4	Frame (L)	1	8059-16-508
482	4	Sensor, P.C.B. (LM)	1	8059-16-301
483	4	Gear (L) Assembly, Lift (Consists of 484-486)	1	8059-16-314
484	4	Gear, Lift	1	8000-22-14
485	4	Arm, Lift	1	8000-22-11
486	4	Spring, LP	1	8000-22-45
487	4	Lever, Lift	1	8059-16-67
488	4	Spring, Lift Lever	1	8059-16-68
489	4	E-Ring S 2.5	1	9504-00-00
490	4	Screw, Sems, M2.6 x 7	1	9099-00-00
491	4	Sleeve, Guide	1	8000-22-24
498	4	Stay, Top	1	8000-22-65
499	4	Wire, End Sensor	1	8059-16-19
500	4	Angle, Rear	1	8059-16-09
501	4	Plate, Upper	1	8059-16-66
502	4	Shaft, Synchronize	1	8059-16-60
503	4	Gear (A), Synchronize	2	8059-16-17
504	4	E-Ring S 2.5	2	9504-00-00
505	4	Screw, Sems, M2.6 x 4	10	9096-00-00
506	4	Screw (For Camera), M2.6 x 3	2	9556-00-00
507	4	Screw (For Camera), M2.3 x 2.5	2	9991-00-00
508	4	Screw, C-Tight, M2.6 x 5	4	9192-00-00
531	3	Plate, RG Slide	1	8059-17-03
532	3	Spring, RG Slide	1	8059-17-11
533	3	Collar, RG Slide Plate	1	8059-17-10
534	3	Screw, Sems, M2 x 4	1	9077-00-00
535	3	Base, RG Slide	1	8059-17-09
536	3	Arm Semi Assembly, RG	1	8059-17-502
537	3	Washer, Polyslider, $\phi 2.6 \times \phi 6 \times 10.5$	1	9684-00-00
538	3	Arm, RG Actuate	1	8059-17-01
539	3	Washer, Polyslider, $\phi 2.1 \times \phi 5 \times 10.5$	1	9876-00-00
540	3	RG Actuator	1	8059-17-02

ELECTRICAL REPLACEMENT PARTS LIST [TV]

PRODUCT SAFETY NOTE: Products marked with a Δ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice of this service manual. Don't degrade the safety of the product through improper servicing.

GENERAL NOTE: "C.B.A." is abbreviation for "Printed Circuit Board Assembly".

NOTE: Parts that not assigned part numbers (-----) are not available.

Tolerance of Capacitors and Resistors are noted with the following symbols.

C..... $\pm 0.25\%$	J..... $\pm 5\%$	Z..... $\pm 80/20\%$
D..... $\pm 0.5\%$	K..... $\pm 10\%$	X..... $\pm 40/20\%$
F..... $\pm 1\%$	M..... $\pm 20\%$	P..... $\pm 100\%$
G..... $\pm 2\%$	N..... $\pm 30\%$	

MMA-78 C.B.A.

Ref. No.	Description	Part No.
	MMA-78 C.B.A.	MMA-78
	Consists of the following :	
Δ	P.C.B.	BB6400F01001
	MAIN C.B.A.	-----
	CRT C.B.A.	-----
	EARPHONE C.B.A.	-----

MAIN C.B.A.

Ref. No.	Description	Part No.
	MAIN C.B.A.	-----
	Consists of the following :	
CAPACITORS		
C 1	ELECTROLYTIC CAP. 1 μ F/50V	126F105S
C 2	SEMICONDUCTOR CAP. 0.0039 μ F/25V K	12Y2392S
C 3	ELECTROLYTIC CAP. 1 μ F/50V	126F105S
C 4	ELECTROLYTIC CAP. 10 μ F/50V	126F106S
C 5	ELECTROLYTIC CAP. 10 μ F/50V	126F106S
C 6	SEMICONDUCTOR CAP. 0.068 μ F/25V K	12Y2683S
C 7	SEMICONDUCTOR CAP. 0.15 μ F/50V Z	1294154S
C 8	ELECTROLYTIC CAP. 470 μ F/16V or ELECTROLYTIC CAP. 470 μ F/16V	CE1CMZNTL471 626C477
C 9	ELECTROLYTIC CAP. 2200 μ F/25V or ELECTROLYTIC CAP. 2200 μ F/25V	CE1EMZNTL222 626D228
C 12	ELECTROLYTIC CAP. 470 μ F/16V or ELECTROLYTIC CAP. 470 μ F/16V	CE1CMZNTL471 626C477
C101	ELECTROLYTIC CAP. 10 μ F/50V	126F106S
C102	CERAMIC CAP. 0.01 μ F/50V FZ or CERAMIC CAP. 0.01 μ F/50V FZ	12F3103S 3F45103S
C103	ELECTROLYTIC CAP. 10 μ F/50V	126F106S
C104	CERAMIC CAP. 220pF/50V SL	1270221S
C105	CERAMIC CAP. 220pF/50V SL	1270221S
C106	CERAMIC CAP. 220pF/50V SL	1270221S
C201	CERAMIC CAP. 0.0022 μ F/1KV or CERAMIC CAP. 0.0022 μ F/1KV	CCD3AKPOB222 6220576
C202	CERAMIC CAP. 0.0022 μ F/1KV or CERAMIC CAP. 0.0022 μ F/1KV	CCD3AKPOB222 6220576

Ref. No.	Description	Part No.
C203	P.P. CAP. 0.0068 μ F/1 6KV or P.P. CAP. 0.0068 μ F/1 6KV	122Z285 1220498
C205	ELECTROLYTIC CAP. 22 μ F/250V or ELECTROLYTIC CAP. 22 μ F/250V or ELECTROLYTIC CAP. 22 μ F/250V	122Z345 CE2EMZDDL220 CE2EMZNTL220
C206	ELECTROLYTIC CAP. 22 μ F/160V or ELECTROLYTIC CAP. 22 μ F/160V or ELECTROLYTIC CAP. 22 μ F/160V	122Z334 CE2CMZNTL220 6220758
C208	CERAMIC CAP. 82pF/500V SL or CERAMIC CAP. 82pF/500V SL	CCD2JKSSL820 122Z777
C209	ELECTROLYTIC CAP. 330 μ F/35V or ELECTROLYTIC CAP. 330 μ F/35V	CE1GMZNTL331 626E337
C210	*MYLAR CAP. 0.1 μ F/50V	1250104S
C211	*MYLAR CAP. 0.0012 μ F/50V	1250122S
C212	CERAMIC CAP. 47pF/50V SL	1270470S
C213	*MYLAR CAP. 0.001 μ F/50V	1250102S
C214	ELECTROLYTIC CAP. 100 μ F/35V	126E107S
C215	*MYLAR CAP. 0.1 μ F/50V	1250104S
C216	TANTAL CAP. 2.2 μ F/25V	122F225
C217	ELECTROLYTIC CAP. 10 μ F/50V	126F106S
C218	ELECTROLYTIC CAP. 2200 μ F/16V or ELECTROLYTIC CAP. 2200 μ F/16V	CE1CMZNTL222 626C228
C219	*MYLAR CAP. 0.18 μ F/50V	625U184
C220	P.P. CAP. 0.47 μ F/200V or P.P. CAP. 0.47 μ F/200V	122Z256 1220511
C221	ELECTROLYTIC CAP. 1 μ F/250V	CA2E010NC009
C226	ELECTROLYTIC CAP. 2200 μ F/16V or ELECTROLYTIC CAP. 2200 μ F/16V	CE1CMZNTL222 626C228
C227	ELECTROLYTIC CAP. 2.2 μ F/160V or ELECTROLYTIC CAP. 2.2 μ F/160V or ELECTROLYTIC CAP. 2.2 μ F/160V	122Z330 CE2CMZDDL2R2 CE2CMZNTL2R2
C228	ELECTROLYTIC CAP. 2.2 μ F/160V or ELECTROLYTIC CAP. 2.2 μ F/160V or ELECTROLYTIC CAP. 2.2 μ F/160V	122Z330 CE2CMZDDL2R2 CE2CMZNTL2R2
C229	CERAMIC CAP. 0.01 μ F/50V FZ or CERAMIC CAP. 0.01 μ F/50V FZ	12F3103S 3F45103S

*MYLAR is a registered trademark of E. I. Du Pont de Nemours and Company.

Ref. No.	Description	Part No.
R104	CHIP RES. 1/10W J 100K Ω	134F104C
R106	CHIP RES. 1/10W J 0 Ω	134F000C
R107	CHIP RES. 1/10W J 8.2K Ω	134F822C
R108	CHIP RES. 1/10W J 4.7K Ω	134F472C
R109	CHIP RES. 1/10W J 390 Ω	134F391C
R110	CHIP RES. 1/10W J 150 Ω	134F151C
R111	CHIP RES. 1/10W J 470 Ω	134F471C
R112	CHIP RES. 1/10W J 270 Ω	134F271C
R113	CHIP RES. 1/10W J 1.5K Ω	134F152C
R114	CHIP RES. 1/10W J 5.6K Ω	134F562C
R115	CHIP RES. 1/10W J 2.7K Ω	134F272C
R116	CHIP RES. 1/10W J 1.8K Ω	134F182C
R117	CHIP RES. 1/10W J 1K Ω	134F102C
R118	CHIP RES. 1/10W J 22K Ω	134F223C
R119	CHIP RES. 1/10W J 1.2K Ω	134F122C
R120	CHIP RES. 1/10W J 1K Ω	134F102C
R121	CHIP RES. 1/10W J 1K Ω	134F102C
R123	CHIP RES. 1/10W J 3.3K Ω	134F332C
R124	CHIP RES. 1/10W J 1.8K Ω	134F182C
R125	CHIP RES. 1/10W J 0 Ω	134F000C
R126	CHIP RES. 1/10W J 1K Ω	134F102C
R127	CHIP RES. 1/10W J 2.2K Ω	134F222C
R128	CHIP RES. 1/10W J 1K Ω	134F102C
R129	CHIP RES. 1/10W J 680 Ω	134F681C
R130	CHIP RES. 1/10W J 47K Ω	134F473C
R141	CHIP RES. 1/10W J 470 Ω	134F471C
R142	CHIP RES. 1/10W J 2.2K Ω	134F222C
R143	CHIP RES. 1/10W J 220 Ω	134F221C
R144	CHIP RES. 1/10W J 0 Ω	134F000C
R151	CHIP RES. 1/10W J 270 Ω	134F271C
R152	CHIP RES. 1/10W J 3.9K Ω	134F392C
R153	CHIP RES. 1/10W J 1.8K Ω	134F182C
R154	CHIP RES. 1/10W J 4.7K Ω	134F472C
R156	CHIP RES. 1/10W J 0 Ω	134F000C
R181	CHIP RES. 1/10W J 15K Ω	134F153C
R182	CHIP RES. 1/10W J 1K Ω	134F102C
R183	CHIP RES. 1/10W J 10K Ω	134F103C
R184	CHIP RES. 1/10W J 1K Ω	134F102C
R185	CHIP RES. 1/10W J 5.6K Ω	134F562C
R186	CHIP RES. 1/10W J 1K Ω	134F102C
R187	CHIP RES. 1/10W J 560 Ω	134F561C
R189	CHIP RES. 1/10W J 1K Ω	134F102C
R190	CHIP RES. 1/10W J 3.3K Ω	134F332C
R191	CARBON RES. 1/5W J 560K Ω or CARBON RES. 1/6W J 560K Ω or CARBON RES. 1/4W J 560K Ω	1324564 132A564 RCX4JZPZ0564
J113	CARBON RES. 1/5W J 22K Ω or CARBON RES. 1/6W J 22K Ω or CARBON RES. 1/4W J 22K Ω	1324223T 132A223T RCX4JATZ0223
VOLUMES		
VR 51	P.O.T. 5K Ω B	138J780
VR 52	P.O.T. 5K Ω B	138J780
VR 53	P.O.T. 2K Ω B or P.O.T. 2K Ω B	138J778 138N778
VR 54	SEMI FIXED RES. 500 Ω B or SEMI FIXED RES. 500 Ω B or P.O.T. 500 Ω B	138J776 138N776 1380712
VR 55	P.O.T. 5K Ω B	138J780

Ref. No.	Description	Part No.
MISCELLANEOUS		
CF 181	CERAMIC FILTER 4.5MHz or CERAMIC FILTER 4.5MHz	1810359 1810358
DL 101	COMB FILTER 4.433619MHz	1813522
DL 151	COMB FILTER ADL-FN1344F	1813025
T 51	L.P.F. 3MHz ELB-4M031N	1810805
T 101	LC FILTER ELB4W009N	1813477
TP 51	TEST PIN RT-08T-1.3BT	1770482
TP 52	TEST PIN RT-08T-1.3BT	1770482
TP 53	TEST PIN RT-08T-1.3BT	1770482
TP 54	TEST PIN RT-08T-1.3BT	1770482
TP 181	TEST PIN RT-08T-1.3BT	1770482
X 101	X'TAL 4.433619MHz or X'TAL 4.433619MHz	1811366 1811388
	PIN HEADER ANGLE 22P 6030B-1-22Z027-T	5700320

Ref. No.	Description	Part No.
SW5507	PUSH SWITCH EVQ-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003
SW5508	PUSH SWITCH EVQ-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003
SW5509	PUSH SWITCH EVQ-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003
SW5510	PUSH SWITCH EVQ-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003
MISCELLANEOUS		
B2-6	HOLDER L.E.D. K1870UA	0VM40289A
RS5501	REMOTE SENSOR UNIT SFN-R0011 or REMOTE CONTROL UNIT HC-278N	1812501 USESJR5KK008
	SEITEC REMOTE SENSOR EXCLUSIVE or KODENSHI REMOTE SENSOR EXCLUSIVE	0VDM05518 0VDM05519
	WIRE 100BLA/AWG20#1007	WX1K1821-005

MSV C.B.A.

Ref. No.	Description	Part No.
	MSV C.B.A. JP380/2870 Consists of the following: P.C.B. (-3) VIDEO	0VSA04957 1614927
CAPACITORS		
C 51	CHIP CERAMIC CAP. SLJ 100pF/50V	1270101C
C 52	CHIP CERAMIC CAP. SLJ 220pF/50V	1270221C
C 53	CHIP CERAMIC CAP. F Z 0.047μF/50V	12F3473C
C 54	CHIP CERAMIC CAP. SL C 5pF/50V	1270509C
C 55	CHIP CERAMIC CAP. SLJ 390pF/50V	1270391C
C 56	CHIP CERAMIC CAP. SLJ 33pF/50V	1270330C
C 57	CHIP CERAMIC CAP. SLJ 15pF/50V	1270150C
C 58	ELECTROLYTIC CAP. 0.47μF/50V M NP	126X474S
C 59	CHIP CERAMIC CAP. SLJ 47pF/50V	1270470C
C 60	CHIP CERAMIC CAP. SLJ 180pF/50V	1270181C
C 61	ELECTROLYTIC CAP. 2.2μF/50V M NP	126X225S
C 62	ELECTROLYTIC CAP. 2.2μF/50V M	126F225S
C 63	ELECTROLYTIC CAP. 0.47μF/50V M	126F474S
C 64	CHIP CERAMIC CAP. SLJ 15pF/50V	1270150C
C 66	CHIP CERAMIC CAP. SLJ 82pF/50V	1270820C
C 67	CHIP CERAMIC CAP. SLJ 47pF/50V	1270470C
C 68	CHIP CERAMIC CAP. SLJ 22pF/50V	1270220C
C 69	CHIP CERAMIC CAP. SLJ 82pF/50V	1270820C
C 70	CHIP CERAMIC CAP. SLJ 22pF/50V	1270220C
C 71	ELECTROLYTIC CAP. 1μF/50V M	126F105S
C 72	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 73	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 74	ELECTROLYTIC CAP. 4.7μF/25V M	126D475S
C 75	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 76	CHIP CERAMIC CAP. F Z 0.047μF/50V	12F3473C
C 77	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 78	ELECTROLYTIC CAP. 47μF/6.3V M	126A476S
C 79	CHIP CERAMIC CAP. B K 0.068μF/16V	12B6683C
C 80	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 81	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 84	ELECTROLYTIC CAP. 47μF/6.3V M	126A476S
C 86	ELECTROLYTIC CAP. 2.2μF/50V M	126F225S
C 87	ELECTROLYTIC CAP. 2.2μF/50V M	126F225S
C 88	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 89	ELECTROLYTIC CAP. 0.47μF/50V M	126F474S
C 90	ELECTROLYTIC CAP. 10μF/16V M	126C106S

Ref. No.	Description	Part No.
C 92	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 94	CHIP CERAMIC CAP. B K 0.068μF/16V	12B6683C
C 101	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 102	ELECTROLYTIC CAP. 1μF/50V M	126F105S
C 103	CHIP CERAMIC CAP. B K 0.01μF/50V	12B3103C
C 104	CHIP CERAMIC CAP. SL J 39pF/50V	1270390C
C 105	CHIP CERAMIC CAP. SL J 100pF/50V	1270101C
C 106	ELECTROLYTIC CAP. 47μF/6.3V M	126A476S
C 108	CHIP CERAMIC CAP. SL J 100pF/50V	1270101C
C 109	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 110	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 111	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 112	CHIP CERAMIC CAP. B K 0.047μF/25V	12B2473C
C 113	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 114	ELECTROLYTIC CAP. 1μF/50V M H7	526W105S
C 115	CHIP CERAMIC CAP. B K 0.01μF/50V	12B3103C
C 116	ELECTROLYTIC CAP. 1μF/50V M	126F105S
C 117	ELECTROLYTIC CAP. 2.2μF/50V M	126F225S
C 118	CHIP CERAMIC CAP. B K 0.022μF/50V	12B3223C
C 119	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 120	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 121	CHIP CERAMIC CAP. B K 0.047μF/25V	12B2473C
C 123	CHIP CERAMIC CAP. SL J 150pF/50V	1270151C
C 124	CHIP CERAMIC CAP. SL J 200pF/50V	1270201C
C 125	CHIP CERAMIC CAP. SL J 220pF/50V	1270221C
C 126	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 127	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 132	CHIP CERAMIC CAP. F Z 0.047μF/50V	12F3473C
C 133	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 141	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 151	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 152	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 153	CHIP CERAMIC CAP. B K 0.022μF/50V	12B3223C
C 181	ELECTROLYTIC CAP. 10μF/16V M H7	526T106S
C 182	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 183	P.L.CAP. 0.082μF/100V J	2231823
C 184	ELECTROLYTIC CAP. 0.1μF/50V M H7	526W104S
C 185	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 188	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 189	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 191	CHIP CERAMIC CAP. F Z 0.01μF/50V	12F3103C
C 192	CERAMIC CAP. BJ 100pF/50V	3B11101
DIODES		
D 51	DIODE 1SS254 or DIODE GMB01B	A1SS254T77** GMB01BT
D 102	DIODE 1SS254 or DIODE GMB01B	A1SS254T77** GMB01BT
D 151	DIODE 1SS254 or DIODE GMB01B	A1SS254T77** GMB01BT
D 181	DIODE 1SS254 or DIODE GMB01B	A1SS254***** GMB01BT
ICS		
IC 51	IC LA7323	GLA7323*****
IC 52	IC LC8992	14LQ489
IC 53	VOLTAGE REGULATOR IC AN78M05F or VOLTAGE REGULATOR IC UPC78M05HF or VOLTAGE REGULATOR IC NJM78M05FA	AN78M05F 14LQ238 GLA7333***** GAN6368*****
IC 101	IC CHROMA LA7333	GLA7333*****
IC 181	IC AN6368	GAN6368*****

Ref. No.	Description	Part No.
COILS		
L 51	INDUCTOR 68μH-K-26T or INDUCTOR 68μH-K-26T	LLAXKATTU680 LLAXKDTKA680
L 52	INDUCTOR 68μH-K-26T or INDUCTOR 68μH-K-26T	LLAXKATTU680 LLAXKATTU101
L 53	INDUCTOR 100μH-K-26T or INDUCTOR 100μH-K-26T	LLAXKDTKA101 LLAXKATTU470
L 57	INDUCTOR 47μH-K-26T or INDUCTOR 47μH-K-26T	LLAXKDTKA470 LLAXKATTU180
L 101	INDUCTOR 18μH-K-26T or INDUCTOR 18μH-K-26T	LLAXKDTKA180 LLAXKATTU3R9
L 102	INDUCTOR 3.9μH-K-26T or INDUCTOR 3.9μH-K-26T	LLAXKDTKA3R9 2162681
L 103	MICRO INDUCTOR 680μH-K	LLAXKDTKA331
L 105	INDUCTOR 330μH-K-26T	2162681S
L 106	MICRO INDUCTOR 680μH-K-5FT or INDUCTOR 680μH-K-5FT	LLARKBSF681 LLAXKATTU150
L 107	INDUCTOR 15μH-K-26T or INDUCTOR 15μH-K-26T	LLAXKDTKA150 113M747
L 181	COIL 5mH or COIL 5mH	113D747
TRANSISTORS		
Q 51	TRANSISTOR 2SA933(Q) or TRANSISTOR 2SA933(R) or TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F)	A9330Z A933RZ A608SEZ A608SFZ
Q 52	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740QZ C1740RZ C536SEZ C536SFZ
Q 53	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740QZ C1740RZ C536SEZ C536SFZ
Q 54	TRANSISTOR 2SA933(Q) or TRANSISTOR 2SA933(R) or TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F)	A9330Z A933RZ A608SEZ A608SFZ
Q 55	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740QZ C1740RZ C536SEZ C536SFZ
Q 56	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740QZ C1740RZ C536SEZ C536SFZ
Q 101	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740QZ C1740RZ C536SEZ C536SFZ
Q 102	TRANSISTOR 2SC2058(P) or TRANSISTOR 2SC2058(Q) or TRANSISTOR 2SC2839(E) or TRANSISTOR 2SC2839(F)	C2058PZ C2058QZ C2839EZ C2839FZ
Q 103	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740QZ C1740RZ C536SEZ C536SFZ

Ref. No.	Description	Part No.
Q 104	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740QZ C1740RZ C536SEZ C536SFZ
Q 107	TRANSISTOR 2SC2058(P) or TRANSISTOR 2SC2058(Q) or TRANSISTOR 2SC2839(E) or TRANSISTOR 2SC2839(F)	C2058PZ C2058QZ C2839EZ C2839FZ
Q 151	TRANSISTOR 2SC2058(P) or TRANSISTOR 2SC2058(Q) or TRANSISTOR 2SC2839(E) or TRANSISTOR 2SC2839(F)	C2058PZ C2058QZ C2839EZ C2839FZ
QR 53	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	C124ESZ C3400Z
QR 54	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	C124ESZ C3400Z
QR 57	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	C124ESZ C3400Z
OR 151	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	C124ESZ C3400Z
QR 181	RES. BUILT-IN TRANSISTOR DTC144WS	C144WSZ
QR 182	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	C124ESZ C3400Z
QR 183	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	C124ESZ C3400Z
RESISTORS		
R 51	CHIP RES. 1/10W J 1K Ω	134F102C
R 52	CHIP RES. 1/10W J 1.2K Ω	134F122C
R 53	CHIP RES. 1/10W J 2.7K Ω	134F272C
R 54	CHIP RES. 1/10W J 1.1K Ω	134F112C
R 55	CHIP RES. 1/10W J 4.7K Ω	134F472C
R 56	CHIP RES. 1/10W J 8.2K Ω	134F822C
R 57	CHIP RES. 1/10W J 2.7K Ω	134F272C
R 58	CHIP RES. 1/10W J 560 Ω	134F561C
R 59	CHIP RES. 1/10W J 3.3K Ω	134F332C
R 60	CHIP RES. 1/10W J 2.2K Ω	134F221C
R 61	CHIP RES. 1/10W J 1M Ω	134F105C
R 62	CHIP RES. 1/10W J 1K Ω	134F102C
R 63	CHIP RES. 1/10W J 1M Ω	134F105C
R 64	CHIP RES. 1/10W J 1M Ω	134F105C
R 65	CHIP RES. 1/10W J 2.2K Ω	134F222C
R 66	CHIP RES. 1/10W J 5.6K Ω	134F562C
R 67	CHIP RES. 1/10W J 1K Ω	134F102C
R 68	CHIP RES. 1/10W J 4.7K Ω	134F472C
R 69	CHIP RES. 1/10W J 2.2K Ω	134F222C
R 70	CHIP RES. 1/10W J 2.2K Ω	134F222C
R 71	CHIP RES. 1/10W J 560 Ω	134F561C
R 72	CHIP RES. 1/10W J 1K Ω	134F102C
R 73	CHIP RES. 1/10W J 1.8K Ω	134F182C
R 74	CHIP RES. 1/10W J 12K Ω	134F123C
R 77	CHIP RES. 1/10W J 33K Ω	134F333C
R 78	CHIP RES. 1/10W J 1.2K Ω	134F122C
R 79	CHIP RES. 1/10W J 1.2K Ω	134F122C
R 80	CHIP RES. 1/10W J 1K Ω	134F102C
R 81	CHIP RES. 1/10W J 68 Ω	134F680C
R 82	CHIP RES. 1/10W J 470K Ω	134F474C
R 83	CHIP RES. 1/10W J 100K Ω	134F104C
R 84	CHIP RES. 1/10W J 39K Ω	134F393C
R 85	CHIP RES. 1/10W J 1K Ω	134F102C
R 101	CHIP RES. 1/10W J 3.3K Ω	134F332C

Ref. No.	Description	Part No.
R 3507	CARBON RES. 1.5W J 1K Ω or CARBON RES. 1.6W J 1K Ω or CARBON RES. 1.4W J 1K Ω	1324102T 132A102T RCX4JATZ0102
R 3508	CARBON RES. 1.5W J 1.5K Ω or CARBON RES. 1.6W J 1.5K Ω or CARBON RES. 1.4W J 1.5K Ω	1324152T 132A152T RCX4JATZ0152
R 3509	CARBON RES. 1.5W J 3.9K Ω or CARBON RES. 1.6W J 3.9K Ω or CARBON RES. 1.4W J 3.9K Ω	1324392T 132A392T RCX4JATZ0392
R 3510	CARBON RES. 1.5W J 1.8K Ω or CARBON RES. 1.6W J 1.8K Ω or CARBON RES. 1.4W J 1.8K Ω	1324182T 132A182T RCX4JATZ0182
R 3511	CARBON RES. 1.5W J 390 Ω or CARBON RES. 1.6W J 390 Ω or CARBON RES. 1.4W J 390 Ω	1324391T 132A391T RCX4JATZ0391
R 3512	CARBON RES. 1.5W J 1K Ω or CARBON RES. 1.6W J 1K Ω or CARBON RES. 1.4W J 1K Ω	1324102T 132A102T RCX4JATZ0102
R 3513	CARBON RES. 1.5W J 1.5K Ω or CARBON RES. 1.6W J 1.5K Ω or CARBON RES. 1.4W J 1.5K Ω	1324152T 132A152T RCX4JATZ0152
R 3514	CARBON RES. 1.5W J 1.2K Ω or CARBON RES. 1.6W J 1.2K Ω or CARBON RES. 1.4W J 1.2K Ω	1324122T 132A122T RCX4JATZ0122
R 3515	CARBON RES. 1.5W J 390 Ω or CARBON RES. 1.6W J 390 Ω or CARBON RES. 1.4W J 390 Ω	1324391T 132A391T RCX4JATZ0391
R 3516	CARBON RES. 1.5W J 390 Ω or CARBON RES. 1.6W J 390 Ω or CARBON RES. 1.4W J 390 Ω	1324391T 132A391T RCX4JATZ0391
R 3517	CARBON RES. 1.5W J 680 Ω or CARBON RES. 1.6W J 680 Ω or CARBON RES. 1.4W J 680 Ω	1324681T 132A681T RCX4JATZ0681
R 3518	CARBON RES. 1.5W J 22K Ω or CARBON RES. 1.6W J 22K Ω or CARBON RES. 1.4W J 22K Ω	1324223T 132A223T RCX4JATZ0223
R 3519	CARBON RES. 1.5W J 8.2K Ω or CARBON RES. 1.6W J 8.2K Ω or CARBON RES. 1.4W J 8.2K Ω	1324822T 132A822T RCX4JATZ0822
R 3520	CARBON RES. 1.5W J 2.7K Ω or CARBON RES. 1.6W J 2.7K Ω or CARBON RES. 1.4W J 2.7K Ω	1324272T 132A272T RCX4JATZ0272
R 3522	CARBON RES. 1.5W J 33K Ω or CARBON RES. 1.6W J 33K Ω or CARBON RES. 1.4W J 33K Ω	1324333T 132A333T RCX4JATZ0333
R 3523	CARBON RES. 1.5W J 5.6K Ω or CARBON RES. 1.6W J 5.6K Ω or CARBON RES. 1.4W J 5.6K Ω	1324562T 132A562T RCX4JATZ0562
R 3524	CARBON RES. 1.5W J 1K Ω or CARBON RES. 1.6W J 1K Ω or CARBON RES. 1.4W J 1K Ω	1324102T 132A102T RCX4JATZ0102
R 3525	CARBON RES. 1.5W J 1.2K Ω or CARBON RES. 1.6W J 1.2K Ω or CARBON RES. 1.4W J 1.2K Ω	1324122T 132A122T RCX4JATZ0122
R 3526	CARBON RES. 1.5W J 2.7K Ω or CARBON RES. 1.6W J 2.7K Ω or CARBON RES. 1.4W J 2.7K Ω	1324272T 132A272T RCX4JATZ0272
R 4001	CARBON RES. 1.5W J 100 Ω or CARBON RES. 1.6W J 100 Ω or CARBON RES. 1.4W J 100 Ω	1324101T 132A101T RCX4JATZ0101

Ref. No.	Description	Part No.
R 4002	CARBON RES. 1.5W J 33K Ω or CARBON RES. 1.6W J 33K Ω or CARBON RES. 1.4W J 33K Ω	1324333T 132A333T RCX4JATZ0333
R 4004	CARBON RES. 1.5W J 82 Ω or CARBON RES. 1.6W J 82 Ω or CARBON RES. 1.4W J 82 Ω	1324820T 132A820T RCX4JATZ0820
R 4005	CARBON RES. 1.5W J 390K Ω or CARBON RES. 1.6W J 390K Ω or CARBON RES. 1.4W J 390K Ω	1324394T 132A394T RCX4JATZ0394
R 4006	CARBON RES. 1.5W J 6.8K Ω or CARBON RES. 1.6W J 6.8K Ω or CARBON RES. 1.4W J 6.8K Ω	1324682T 132A682T RCX4JATZ0682
R 4009	CARBON RES. 1.5W J 2.2M Ω or CARBON RES. 1.6W J 2.2M Ω or CARBON RES. 1.4W J 2.2M Ω	1324225T 132A225T RCX4JATZ0225
R 4010	CARBON RES. 1.5W J 27K Ω or CARBON RES. 1.6W J 27K Ω or CARBON RES. 1.4W J 27K Ω	1324273T 132A273T RCX4JATZ0273
R 4011	CARBON RES. 1.5W J 5.6K Ω or CARBON RES. 1.6W J 5.6K Ω or CARBON RES. 1.4W J 5.6K Ω	1324562T 132A562T RCX4JATZ0562
R 4012	CARBON RES. 1.5W J 3.9K Ω or CARBON RES. 1.6W J 3.9K Ω or CARBON RES. 1.4W J 3.9K Ω	1324392T 132A392T RCX4JATZ0392
R 4014	CARBON RES. 1.5W J 1.5K Ω or CARBON RES. 1.6W J 1.5K Ω or CARBON RES. 1.4W J 1.5K Ω	1324152T 132A152T RCX4JATZ0152
R 4015	CARBON RES. 1.5W J 1.8K Ω or CARBON RES. 1.6W J 1.8K Ω or CARBON RES. 1.4W J 1.8K Ω	1324182T 132A182T RCX4JATZ0182
R 4016	CARBON RES. 1.5W J 1K Ω or CARBON RES. 1.6W J 1K Ω or CARBON RES. 1.4W J 1K Ω	1324102T 132A102T RCX4JATZ0102
R 4017	CARBON RES. 1.5W J 1K Ω or CARBON RES. 1.6W J 1K Ω or CARBON RES. 1.4W J 1K Ω	1324102T 132A102T RCX4JATZ0102
R 4018	CARBON RES. 1.5W J 27K Ω or CARBON RES. 1.6W J 27K Ω or CARBON RES. 1.4W J 27K Ω	1324273T 132A273T RCX4JATZ0273
R 4019	CARBON RES. 1.5W J 47 Ω or CARBON RES. 1.6W J 47 Ω or CARBON RES. 1.4W J 47 Ω	1324470T 132A470T RCX4JATZ0470
R 4020	CARBON RES. 1.5W J 6.8K Ω or CARBON RES. 1.6W J 6.8K Ω or CARBON RES. 1.4W J 6.8K Ω	1324682T 132A682T RCX4JATZ0682
R 4021	CARBON RES. 1.5W J 4.7 Ω or CARBON RES. 1.6W J 4.7 Ω or CARBON RES. 1.4W J 4.7 Ω	1324479T 132A479T RCX4JATZ0479
R 4022	CARBON RES. 1.5W J 22 Ω or CARBON RES. 1.6W J 22 Ω or CARBON RES. 1.4W J 22 Ω	1324220T 132A220T RCX4JATZ0220
R 4025	CARBON RES. 1.5W J 47K Ω or CARBON RES. 1.6W J 47K Ω or CARBON RES. 1.4W J 47K Ω	1324473T 132A473T RCX4JATZ0473
R 4026	CARBON RES. 1.5W J 4.7K Ω or CARBON RES. 1.6W J 4.7K Ω or CARBON RES. 1.4W J 4.7K Ω	1324472T 132A472T RCX4JATZ0472
R 4027	CARBON RES. 1.5W J 2.2K Ω or CARBON RES. 1.6W J 2.2K Ω or CARBON RES. 1.4W J 2.2K Ω	1324222T 132A222T RCX4JATZ0222

Ref. No.	Description	Part No.
R 6032	CARBON RES. 1.5W J 180 Ω or CARBON RES. 1.6W J 180 Ω or CARBON RES. 1.4W J 180 Ω	1324181T 132A181T RCX4JATZ0181
VOLUMES		
VR3501	CARBON P.O.T. 2.2K Ω or CARBON P.O.T. 2 K Ω	238A338Y 238N506Y 238A348Y
VR4001	CARBON P.O.T. 100K Ω or CARBON P.O.T. 100 K Ω	238N513Y
MISCELLANEOUS		
B2-4	SHIELD BOTTOM (TV) K1870UA	0VM301259
B2-5	SHIELD TOP (2H) K6190BA	0VM300746
TP3501	TEST PIN RT-01T-1.3B	1720688
TP3502	TEST PIN RT-01T-1.3B	1720688
TP3503	TEST PIN RT-01T-1.3B	1720688
TP3504	TEST PIN RT-01T-1.3B	1720688
TP3505	TEST PIN RT-01T-1.3B	1720688
TP4001	TEST PIN RT-01T-1.3B	1720688
TP4002	TEST PIN RT-01T-1.3B	130686
T 4001	COIL OSC AUDIO or COIL OSC AUDIO or COIL OSC AUDIO	113M686 1130686

MCV-E C.B.A. (ACE Head Conn.)

Ref. No.	Description	Part No.
	MCV-E C.B.A. Consists of the following :	-----
CN4001	CONNECTOR HOUSING 6P IL-SDD-6S-S2L2-FA	JCZLB06NBCOF

MCV-F C.B.A. (FE-H Conn.)

Ref. No.	Description	Part No.
	MCV-F C.B.A. Consists of the following :	-----
CN4002	CONNECTOR HOUSING 2P IL-SDD-2S-S2L2-FA	JCZLB02NBCOF

MCV-G C.B.A. (Control)

Ref. No.	Description	Part No.
	MCV-G C.B.A. Consists of the following :	-----
CAPACITORS		
C 5501	ELECTROLYTIC CAP. 47 μ F 6.3V M H7	526R476S
C 5502	CERAMIC CAP. F Z 0.033 μ F/12V or CERAMIC CAP. F Z 0.033 μ F/16V	1220887T 122Z790T
CONNECTOR		
CN5501	HINGED PIN CONNECTOR 8P TKC-08P-E1	1700362
DIODES		
D 5501	LED SLR-34VR5 RED	1401230
D 5502	LED SLR-34VR5 RED	1401230
D 5503	LED SLR-34MG5 GREEN	1401231
TRANSISTORS		
Q 5501	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 25C3400	C124ESZ C3400Z
Q 5502	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 25C3400	C124ESZ C3400Z
Q 5503	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 25C3400	C124ESZ C3400Z

Ref. No.	Description	Part No.
RESISTORS		
R 5501	CARBON RES. 1.5W J 100 Ω or CARBON RES. 1.6W J 100 Ω or CARBON RES. 1.4W J 100 Ω	1324101T 132A101T RCX4JATZ0101
R 5502	CARBON RES. 1.5W J 10K Ω or CARBON RES. 1.6W J 10K Ω or CARBON RES. 1.4W J 10K Ω	1324103T 132A103T RCX4JATZ0103
R 5503	CARBON RES. 1.5W J 4.7K Ω or CARBON RES. 1.6W J 4.7K Ω or CARBON RES. 1.4W J 4.7K Ω	1324472T 132A472T RCX4JATZ0472
R 5504	CARBON RES. 1.5W J 4.7K Ω or CARBON RES. 1.6W J 4.7K Ω or CARBON RES. 1.4W J 4.7K Ω	1324472T 132A472T RCX4JATZ0472
R 5505	CARBON RES. 1.5W J 1.2K Ω or CARBON RES. 1.6W J 1.2K Ω or CARBON RES. 1.4W J 1.2K Ω	1324122T 132A122T RCX4JATZ0122
R 5506	CARBON RES. 1.5W J 3K Ω or CARBON RES. 1.6W J 3K Ω or CARBON RES. 1.4W J 3K Ω	1324302T 132A302T RCX4JATZ0302
R 5507	CARBON RES. 1.5W J 6.2K Ω or CARBON RES. 1.6W J 6.2K Ω or CARBON RES. 1.4W J 6.2K Ω	1324622T 132A622T RCX4JATZ0622
R 5508	CARBON RES. 1.5W J 6.2K Ω or CARBON RES. 1.6W J 6.2K Ω or CARBON RES. 1.4W J 6.2K Ω	1324622T 132A622T RCX4JATZ0622
R 5509	CARBON RES. 1.5W J 15K Ω or CARBON RES. 1.6W J 15K Ω or CARBON RES. 1.4W J 15K Ω	1324153T 132A153T RCX4JATZ0153
R 5510	CARBON RES. 1.5W J 15K Ω or CARBON RES. 1.6W J 15K Ω or CARBON RES. 1.4W J 15K Ω	1324153T 132A153T RCX4JATZ0153
R 5511	CARBON RES. 1.5W J 470 Ω or CARBON RES. 1.6W J 470 Ω or CARBON RES. 1.4W J 470 Ω	1324471T 132A471T RCX4JATZ0471
R 5512	CARBON RES. 1.5W J 470 Ω or CARBON RES. 1.6W J 470 Ω or CARBON RES. 1.4W J 470 Ω	1324471T 132A471T RCX4JATZ0471
R 5513	CARBON RES. 1.5W J 1.2K Ω or CARBON RES. 1.6W J 1.2K Ω or CARBON RES. 1.4W J 1.2K Ω	1324122T 132A122T RCX4JATZ0122
R 5514	CARBON RES. 1.5W J 3K Ω or CARBON RES. 1.6W J 3K Ω or CARBON RES. 1.4W J 3K Ω	1324302T 132A302T RCX4JATZ0302
R 5515	CARBON RES. 1.5W J 150 Ω or CARBON RES. 1.6W J 150 Ω or CARBON RES. 1.4W J 150 Ω	1324151T 132A151T RCX4JATZ0151
SWITCHES		
SW5501	PUSH SWITCH EVO-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003
SW5502	PUSH SWITCH EVO-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003
SW5503	PUSH SWITCH EVO-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003
SW5504	PUSH SWITCH EVO-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003
SW5505	PUSH SWITCH EVO-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003
SW5506	PUSH SWITCH EVO-335 05R or PUSH SWITCH SKOHV00059	5622212Y SST0101AL003

Ref. No.	Description	Part No.
R632	CARBON RES. 10KΩ 1/6W	132A103T
R635	CARBON RES. 10KΩ 1/6W	132A103T
R637	CARBON RES. 1KΩ 1/6W	132A102T
R638	CARBON RES. 10KΩ 1/6W	132A103T
R639	CARBON RES. 22KΩ 1/4W J	1345223S
R800	CARBON RES. 150KΩ 1/6W	132A154T
SWITCHES		
SW301	SLIDE SWITCH or SLIDE SWITCH or SLIDE SWITCH or SLIDE SWITCH	1621654 SSS0202HZ003 SSS0202WM001 SSS0202DK001
SW501 Δ	POWER SWITCH	SPP0A8ZAL001
VOLUMES		
VR301	SEMIFIXED RES. 1KΩ B (PAL ADJ.) or SEMIFIXED RES. 1KΩ B (PAL ADJ.) or SEMIFIXED RES. 1KΩ B (PAL ADJ.)	638A102 138J777 1380760
VR302	SEMIFIXED RES. 100KΩ B (V. SIZE) or SEMIFIXED RES. 100KΩ B (V. SIZE) or SEMIFIXED RES. 100KΩ B (V. SIZE)	638A104 138J785 1380716
VR303	SEMIFIXED RES. 20KΩ B (SUB BRIGHT) or SEMIFIXED RES. 20KΩ B (SUB BRIGHT) or SEMIFIXED RES. 20KΩ B (SUB BRIGHT)	638A223 138J782 1380709
VR304 (R342)	SEMIFIXED RES. 200Ω B (H. POSITION ADJ.) or SEMIFIXED RES. 200Ω B (H. POSITION ADJ.) or SEMIFIXED RES. 200Ω B (H. POSITION ADJ.)	638A221 238J113 1380710
VR601	SEMIFIXED RES. 50KΩ B (112V ADJ.) or SEMIFIXED RES. 50KΩ B (112V ADJ.) or SEMIFIXED RES. 50KΩ B (112V ADJ.)	638A473 138J784 1380704
VR602	SEMIFIXED RES. 5KΩ B (12V ADJ.) or SEMIFIXED RES. 5KΩ B (12V ADJ.) or SEMIFIXED RES. 5KΩ B (12V ADJ.)	638A472 138J780 1380714
MISCELLANEOUS		
CN201	CONNECTOR BASE 5pin (for D.Y) or CONNECTOR BASE 5pin (for D.Y) or CONNECTOR BASE 5pin (for D.Y)	1780168 1780277 1730812
CN501	CONNECTOR BASE 2pin (for D.G. COIL) or CONNECTOR BASE 2pin (for D.G. COIL)	1780165 1780276
CN601	CONNECTOR BASE 13pin (MAIN C.B.A. - VCR)	1700679
DL301	GLASS DELAY or GLASS DELAY	1813554 1812056
F501 Δ	FUSE T4AH 250V	PAGC20BAG402
FH501	FUSE HOLDER or FUSE HOLDER	1790848 1790424
FH502	FUSE HOLDER or FUSE HOLDER	1790848 1790424
HS-1	HEAT SINK EH (for IC501)	0EM401068
HS-2	HEAT SINK PO (for IC202)	0EM401065
HS-3	HEAT SINK PQ (for IC601)	0EM401067
HS-4	HEAT SINK PM (for Q202)	0EM401038
JS01 Δ	AC INLET	JTDCOP0HD002
LD 2	WIRE ASS'Y 2pin (MAIN C.B.A. - EARPHONE C.B.A.)	WX1B6400-001
LD 3	LEAD WIRE UL1050 AWG22 120mm	WX3001C20012
PS501 Δ	POSISTOR	5790117
T201	H. DRIVE TRANS	1150325
T202 Δ	F.B.T.	1813482

Ref. No.	Description	Part No.
T501 Δ	SWITCHING TRANS	LTT00EPMS007
TP 1	TEST PIN or TEST PIN	1700093 1740354
TP 2	TEST PIN or TEST PIN	1700093 1740354
TP 3	TEST PIN or TEST PIN	1700093 1740354
TP 4	TEST PIN or TEST PIN	1700093 1740354
TP 5	TEST PIN or TEST PIN	1700093 1740354
TP 6	CONNECTOR PIN	1720688
XT302	X' TAL 4.43MHz	1811387
XT303	CERAMIC RESONATOR HEAT SINK SHEET (for Q202) or HEAT SINK SHEET (for Q202) WIRE TIE or WIRE TIE	1813552 XJ02000DB001 XJ02000CA002 1790256 1890356

CRT C.B.A.

Ref. No.	Description	Part No.
CRT C.B.A.		
Consists of the following :		
CAPACITORS		
C701	CERAMIC CAP. 0.01μF/2KV or CERAMIC CAP. 0.01μF/2KV	CCD3DZP0E103 6220602
C702	CERAMIC CAP. 390pF/50V YB or CERAMIC CAP. 390pF/50V YB	12B3391S 3B42391T
C703	CERAMIC CAP. 270pF/50V YB or CERAMIC CAP. 270pF/50V YB	12B3271S 3B42271T
C704	CERAMIC CAP. 330pF/50V YB or CERAMIC CAP. 330pF/50V YB	12B3331S 3B42331T
C705	ELECTROLYTIC CAP. 10μF/50V	126F106S
C706	CERAMIC CAP. 1000pF/50V YB or CERAMIC CAP. 1000pF/50V YB	12B3102S 3B42102T
COIL		
L701	MICRO INDUCTOR 100μH or MICRO INDUCTOR 100μH	2165101T 2162107
TRANSISTORS		
Q701	TR. 2SC2228AEMP(D) or TR. 2SC2228AEMP(E)	2SC2228D-AE-MP 2SC2228E-AE-MP
Q702	TR. 2SC2228AEMP(D) or TR. 2SC2228AEMP(E)	2SC2228D-AE-MP 2SC2228E-AE-MP
Q703	TR. 2SC2228AEMP(D) or TR. 2SC2228AEMP(E)	2SC2228D-AE-MP 2SC2228E-AE-MP
RESISTORS		
R701	METAL RES. 15KΩ 1W	534A153
R702	METAL RES. 15KΩ 1W	534A153
R703	METAL RES. 15KΩ 1W	534A153
R704	CARBON RES. 1.5KΩ 1/4W J	1345152S
R705	CARBON RES. 1.8KΩ 1/4W J	1345182S
R706	CARBON RES. 1.8KΩ 1/4W J	1345182S
R707	CARBON RES. 1.5KΩ 1/4W J	1345152S
R708	CARBON RES. 1.8KΩ 1/4W J	1345182S
R709	CARBON RES. 1.5KΩ 1/4W J	1345152S
R710	CARBON RES. 1.8KΩ 1/6W	132A182T
R711	CARBON RES. 560Ω 1/6W	132A561T
R712	CARBON RES. 1.8KΩ 1/6W	132A182T
R713	CARBON RES. 330Ω 1/6W	132A331T

CHASSIS ELECTRICAL PARTS

Ref. No.	Description	Part No.
CRT701 Δ	CRT 370KRB22-TC09(SPYB) or CRT 37GDA85X-TC01(P) or CRT A34KFC12XX48	1812341 1812724 TCRT1C+GS001
L504 Δ	DEGAUSSING COIL or DEGAUSSING COIL	1120172 LLBZ000AB013
LD 1	WIRE ASS'Y (EARPHONE C.B.A. - SP)	WX1B6200-004
LD703	WIRE ASS'Y (CRT GND WIRE) or WIRE ASS'Y (CRT GND WIRE)	CE8002-04 WX1B6200-006
SP 1	SPEAKER or SPEAKER or SPEAKER or SPEAKER or SPEAKER or SPEAKER	152N589 1520614 1520568 1520589 DSD0807HC001 DSD0808J001

Ref. No.	Description	Part No.
R714	CARBON RES. 560Ω 1/6W	132A561T
R715	CARBON RES. 1.8KΩ 1/6W	132A182T
R716	CARBON RES. 560Ω 1/6W	132A561T
VOLUMES		
VR701	SEMIFIXED RES. 5KΩ B (B. CUT OFF) or SEMIFIXED RES. 5KΩ B (B. CUT OFF) or SEMIFIXED RES. 5KΩ B (B. CUT OFF)	138A957 138J916 1380851
VR702	SEMIFIXED RES. 5KΩ B (G. CUT OFF) or SEMIFIXED RES. 5KΩ B (G. CUT OFF) or SEMIFIXED RES. 5KΩ B (G. CUT OFF)	138A957 138J916 1380851
VR703	SEMIFIXED RES. 5KΩ B (R. CUT OFF) or SEMIFIXED RES. 5KΩ B (R. CUT OFF) or SEMIFIXED RES. 5KΩ B (R. CUT OFF)	138A957 138J916 1380851
VR704	SEMIFIXED RES. 500Ω B (R. DRIVE) or SEMIFIXED RES. 500Ω B (R. DRIVE) or SEMIFIXED RES. 500Ω B (R. DRIVE)	138A951 1380849 138A951
VR705	SEMIFIXED RES. 500Ω B (B. DRIVE) or SEMIFIXED RES. 500Ω B (B. DRIVE) or SEMIFIXED RES. 500Ω B (B. DRIVE)	138J912 1380849
MISCELLANEOUS		
CN701	CONNECTOR PIN 1pin (CRT GND) or CONNECTOR PIN 1pin (CRT GND)	JTEA000LC001 1730688
J702 Δ	CRT SOCKET or CRT SOCKET	1780218 1780080
LD701	WIRE ASS'Y 4pin (MAIN C.B.A. - CRT C.B.A.)	WX1B6400-002
LD702	WIRE ASS'Y 5pin (MAIN C.B.A. - CRT C.B.A.)	WX1B6400-003

EARPHONE C.B.A.

Ref. No.	Description	Part No.
EARPHONE C.B.A.		
Consists of the following :		
CN 1	CONNECTOR BASE 2pin (EARPHONE C.B.A. - SP)	1770258
EP 1	EARPHONE JACK	163C419
R 10	CARBON RES. 82Ω 1/6W	132A820T

ELECTRICAL REPLACEMENT PARTS LIST [VCR]

PRODUCT SAFETY NOTE: Products marked with a Δ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice of this service manual. Don't degrade the safety of the product through improper servicing.

GENERAL NOTE: "C.B.A." is abbreviation for "Printed Circuit Board Assembly".

NOTE: Parts that not assigned part numbers (-----) are not available.

Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	J.....±5%	Z.....+80/-20%
D.....±0.5%	K.....±10%	X.....+40/-20%
F.....±1%	M.....±20%	P.....+100%
G.....±2%	H.....±30%	

MCV C.B.A.

Ref. No.	Description	Part No.
	MCV C.B.A. JP380/2870	0VSA04933
	Consists of the following :	
	P.C.B. K2870/MCV	BK2870F01001
	MCV-A C.B.A.	-----
	MCV-B C.B.A.	-----
	MCV-C C.B.A.	-----
	MCV-D C.B.A.	-----
	MCV-E C.B.A.	-----
	MCV-F C.B.A.	-----
	MCV-G C.B.A.	-----

MCV-A C.B.A. (Main)

Ref. No.	Description	Part No.
	MCV-A C.B.A.	-----
	Consists of the following :	
	CAPACITORS	
C 1501	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 1502	ELECTROLYTIC CAP. 47μF/16V M	126C476S
C 1503	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 1504	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 1505	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 2001	MYLAR CAP. 0.033μF/50V J	2254333S
C 2002	ELECTROLYTIC CAP. 100μF/6.3V M	126A107S
C 2003	ELECTROLYTIC CAP. 0.22μF/50V M	126F224S
C 2004	CERAMIC CAP. Y M 0.01μF/16V or	3Y4D103T
	CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 2005	CERAMIC CAP. F Z 0.047μF/12V	32F1473S
C 2006	SEMICONDUCTOR CAP. SR K 0.047μF/25V	12Y2473S
C 2007	SEMICONDUCTOR CAP. SR K 0.047μF/25V	12Y2473S
C 2008	CERAMIC CAP. F Z 0.022μF/25V or	122Z122T
	CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 2009	CERAMIC CAP. F Z 0.047μF/12V	32F1473S
C 2010	ELECTROLYTIC CAP. 100μF/6.3V M	126A107S
C 2011	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 2012	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 2013	ELECTROLYTIC CAP. 10μF/16V M LL	124H106S
C 2014	CERAMIC CAP. Y M 0.01μF/16V or	3Y4D103T
	CERAMIC CAP. F Z 0.01μF/16V	1220842T

Ref. No.	Description	Part No.
C 2015	ELECTROLYTIC CAP. 33μF/10V M	126B336S
C 2016	CERAMIC CAP. F Z 0.1μF/25V	1220520S
C 2017	ELECTROLYTIC CAP. 47μF/25V M	126D476S
C 2018	CERAMIC CAP. F Z 0.1μF/25V	1220520S
C 2019	CERAMIC CAP. F Z 0.1μF/25V	1220520S
C 2020	CERAMIC CAP. F Z 0.022μF/25V or	122Z122T
	CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 2021	SEMI. COND. -CAP. F Z 0.1μF/16V	1220522S
C 2022	ELECTROLYTIC CAP. 47μF/16V M	126C476S
C 2023	CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 2024	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 2025	SEMICONDUCTOR CAP. SR K 0.047μF/25V	12Y2473S
C 2026	CERAMIC CAP. Y M 0.01μF/16V or	3Y4D103T
	CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 2027	CERAMIC CAP. F Z 0.022μF/25V or	122Z122T
	CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 2028	ELECTROLYTIC CAP. 1μF/50V M	126F105S
C 2029	ELECTROLYTIC CAP. 1μF/50V M	126F105S
C 2030	ELECTROLYTIC CAP. 1μF/50V M	126F105S
C 2031	CERAMIC CAP. F Z 0.022μF/25V or	122Z122T
	CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 2032	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 2033	CERAMIC CAP. Y M 0.01μF/16V or	3Y4D103T
	CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 2034	CERAMIC CAP. Y M 0.01μF/16V or	3Y4D103T
	CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 3201	ELECTROLYTIC CAP. 47μF/16V M	126C476S
C 3202	ELECTROLYTIC CAP. 100μF/6.3V M	126A108S
C 3205	CERAMIC CAP. F Z 0.1μF/50V	3F40104T
C 4028	CERAMIC CAP. X K 0.0012μF/16V	3X4C122T
C 6001	CERAMIC CAP. SL J 22pF/50V	3541220T
C 6002	CERAMIC CAP. SL J 27pF/50V	3541270T
C 6003	CERAMIC CAP. Y M 0.01μF/16V or	3Y4D103T
	CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 6004	ELECTROLYTIC CAP. 47μF/6.3V M H7	526R476S C 6005
	CERAMIC CAP. F Z 0.01μF/16V	1220842T
C 6006	ELECTROLYTIC CAP. 1000μF/6.3V M	126A108S

Ref. No.	Description	Part No.
C 6007	CERAMIC CAP. F Z 0.022μF/25V or	122Z122T
	CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 6008	CERAMIC CAP. F Z 0.022μF/25V or	122Z122T
	CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 6009	CERAMIC CAP. F Z 0.1μF/50V	3F40104T
C 6010	CERAMIC CAP. B J 100pF/50V	3B41101T
C 6011	CERAMIC CAP. F Z 0.033μF/12V or	1220887T
	CERAMIC CAP. F Z 0.033μF/16V	122Z790T
C 6012	CERAMIC CAP. F Z 0.033μF/12V or	1220887T
	CERAMIC CAP. F Z 0.033μF/16V	122Z790T
C 7001	ELECTROLYTIC CAP. 100μF/10V M	126B107S
C 7002	ELECTROLYTIC CAP. 0.47μF/50V M	126F474S
C 7003	CERAMIC CAP. F Z 0.1μF/50V	3F40104T
C 7004	MYLAR CAP. 0.1μF/50V J	2254104S
C 7005	MYLAR CAP. 0.15μF/50V J	2254154S
C 7006	MYLAR CAP. 0.15μF/50V J	2254154S
C 7007	ELECTROLYTIC CAP. 47μF/35V M	126E476S
C 7008	CERAMIC CAP. B J 120pF/50V	3B41121T
C 7009	ELECTROLYTIC CAP. 1μF/50V M	126F105S
C 7010	ELECTROLYTIC CAP. 1000μF/6.3V M	126A108S
C 7011	ELECTROLYTIC CAP. 470μF/16V M	126C477
C 7012	CERAMIC CAP. B J 330pF/50V	3B41331T
C 7013	ELECTROLYTIC CAP. 0.47μF/50V M	126F474S
C 7014	ELECTROLYTIC CAP. 1μF/50V M	126F105S
C 7015	CERAMIC CAP. B J 270pF/50V	3B41271T
C 7016	ELECTROLYTIC CAP. 0.47μF/50V M	126F474S
C 7017	CERAMIC CAP. B J 0.001μF/50V	3B41102T
C 7018	ELECTROLYTIC CAP. 47μF/16V M	126C476S
C 7019	ELECTROLYTIC CAP. 100μF/16V M	126C107S
C 7020	CERAMIC CAP. X K 0.0056μF/16V	3X4C562T
C 7021	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 7022	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 7023	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 7024	ELECTROLYTIC CAP. 0.47μF/50V M	126F474S
C 8001	SEMI. COND. -CAP. F Z 0.1μF/16V	1220522S
C 8002	CERAMIC CAP. SL J 47pF/50V	3541470T
C 8003	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 8005	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 8006	ELECTROLYTIC CAP. 100μF/6.3V M	126A107S
C 8008	CERAMIC CAP. B J 100pF/50V	3B41101T
C 8501	CERAMIC CAP. CH J 15pF/50V	3C41150T
C 8502	CERAMIC CAP. CH J 15pF/50V	3C41150T
C 8503	CERAMIC CAP. X K 0.0022μF/16V	3X4C222T
C 8504	CERAMIC CAP. X K 0.0047μF/16V	3X4C472T
C 8505	CERAMIC CAP. F Z 0.047μF/12V	32F1473S
C 8506	CERAMIC CAP. F Z 0.022μF/25V or	122Z122T
	CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 8507	CERAMIC CAP. B J 220pF/50V	3B41221T
C 8509	CERAMIC CAP. SL J 15pF/50V	3541150T
C 8510	CERAMIC CAP. SL J 30pF/50V	3541300T
C 8511	CERAMIC CAP. F Z 0.022μF/25V or	122Z122T
	CERAMIC CAP. F Z 0.022μF/25V	1220843T
C 8512	ELECTROLYTIC CAP. 10μF/16V M	126C106S
C 8513	CERAMIC CAP. B J 0.001μF/50V	3B41102T
C 8514	CERAMIC CAP. B J 0.001μF/50V	3B41102T
CONNECTORS		
CN1501	CONNECTOR ASSY 13P	WX1K2870-001
CN2002	FLOATING PIN CONNECTOR 10P TKC-M10P-A1	J3TKJ10TGH0F

Ref. No.	Description	Part No.
CN3202	FLOATING PIN CONNECTOR 10P TKC-M10P-A1	J3TKJ10TGH0F
CN6001	FLOATING PIN CONNECTOR 14P TKC-M14P-A1	J3TKJ14TGH0F
CN6002	HINGED SOCKET CONNECTOR 8P TKC-B08X-E1	1700367
DIODES		
D 1501	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 1502	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 1503	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 1504	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 2001	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 2002	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 2003	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 2004	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 2005	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 2006	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 2007	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 2008	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 3201	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 6001	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 6004	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 6005	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 6008	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 6010	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 6011	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 6012	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 7001	ZENER DIODE MTZ5 6B	AMT25R6B77**
D 7002	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 7003	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 8001	DIODE 1SS254 or	A1SS254T77**
	DIODE GMB01B	GMB01BT
D 8002	ZENER DIODE MTZ5 6A or	AMT25R6A****
	ZENER DIODE MTZ5 6B or	AMT25R6B****
	ZENER DIODE MTZ5 6C	AMT25R6C****
D 8501	ZENER DIODE MTZ5 6A or	AMT25R6A77**
	ZENER DIODE MTZ5 6B or	AMT25R6B77**
	ZENER DIODE MTZ5 6C	AMT25R6C77**

Ref. No.	Description	Part No.
ICS		
IC1501	VOLTAGE REGULATOR IC AN78M05F or AN78M05FA	AN78M05F
IC1502	VOLTAGE REGULATOR IC AN78M05F or AN78M05FA	J78M05FA
IC2001	IC (OP-AMP.) BA10324A	AN78M05F
IC2002	IC (OP-AMP.) BA10324A	J78M05FA
IC2003	IC (OP-AMP.) BA10324A	QSMEOASRM001
IC2004	IC MOTOR DRIVER BA6219B	QSMEOASRM002
IC2005	IC MOTOR DRIVER BA6209N	QSMEOASRM002
IC6001	MICRO CONTROLLER 4BIT SY/CXP50120-Q	14LF232
IC6002	IC RESET PST-529C-2	14LF492
IC6003	IC RESET IC-PST529F-2	QSMQAOASRM007
IC6004	IC X24C01P	14D066SZ
IC7001	VOLTAGE REGULATOR IC AN78M09F or AN78M09FA	GR591399*****
IC7002	VOLTAGE REGULATOR IC AN78M09F or AN78M09FA	GX24C01P0000
IC7003	IC LA7210 or IC MM1021XS	AN78M09F
IC7004	IC L5631	14L0241
IC8001	IC BU4053B	OSBLAOSRM002
IC8501	IC OSD UPD6450CX-519	14L0115
COILS		
L 7001	INDUCTOR 330μH-K-26T	LLAXKDTKA331
L 8501	MICRO INDUCTOR 33μH-J-AXT	2164330T
TRANSISTORS		
Q 1501	TRANSISTOR 2SA934(Q) or TRANSISTOR 2SA934(R)	A934OZ
Q 1502	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	A934RZ
Q 1503	RES. BUILT-IN TRANSISTOR DTA143XS	C124ESZ
Q 1504	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	C3400Z
Q 2001	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	A143XSZ
Q 2002	RES. BUILT-IN TRANSISTOR DTA124ES or RES. BUILT-IN TRANSISTOR 2SA1346	C124ESZ
Q 2003	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	C3400Z
Q 2004	TRANSISTOR 2SA933(Q) or TRANSISTOR 2SA933(R) or TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F)	A933OZ
Q 2005	RES. BUILT-IN TRANSISTOR DTC144ES	A933RZ
Q 2006	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	A608SEZ
Q 3201	TRANSISTOR 2SA1317(S) or TRANSISTOR 2SA1317(T)	A608SFZ
Q 6001	RES. BUILT-IN TRANSISTOR DTA124ES or RES. BUILT-IN TRANSISTOR 2SA1346	A144ESZ
Q 6002	RES. BUILT-IN TRANSISTOR DTA124ES or RES. BUILT-IN TRANSISTOR 2SA1346	A1346Z
Q 6003	RES. BUILT-IN TRANSISTOR DTA124ES or RES. BUILT-IN TRANSISTOR 2SA1346	A124ESZ
Q 6004	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	A1346Z

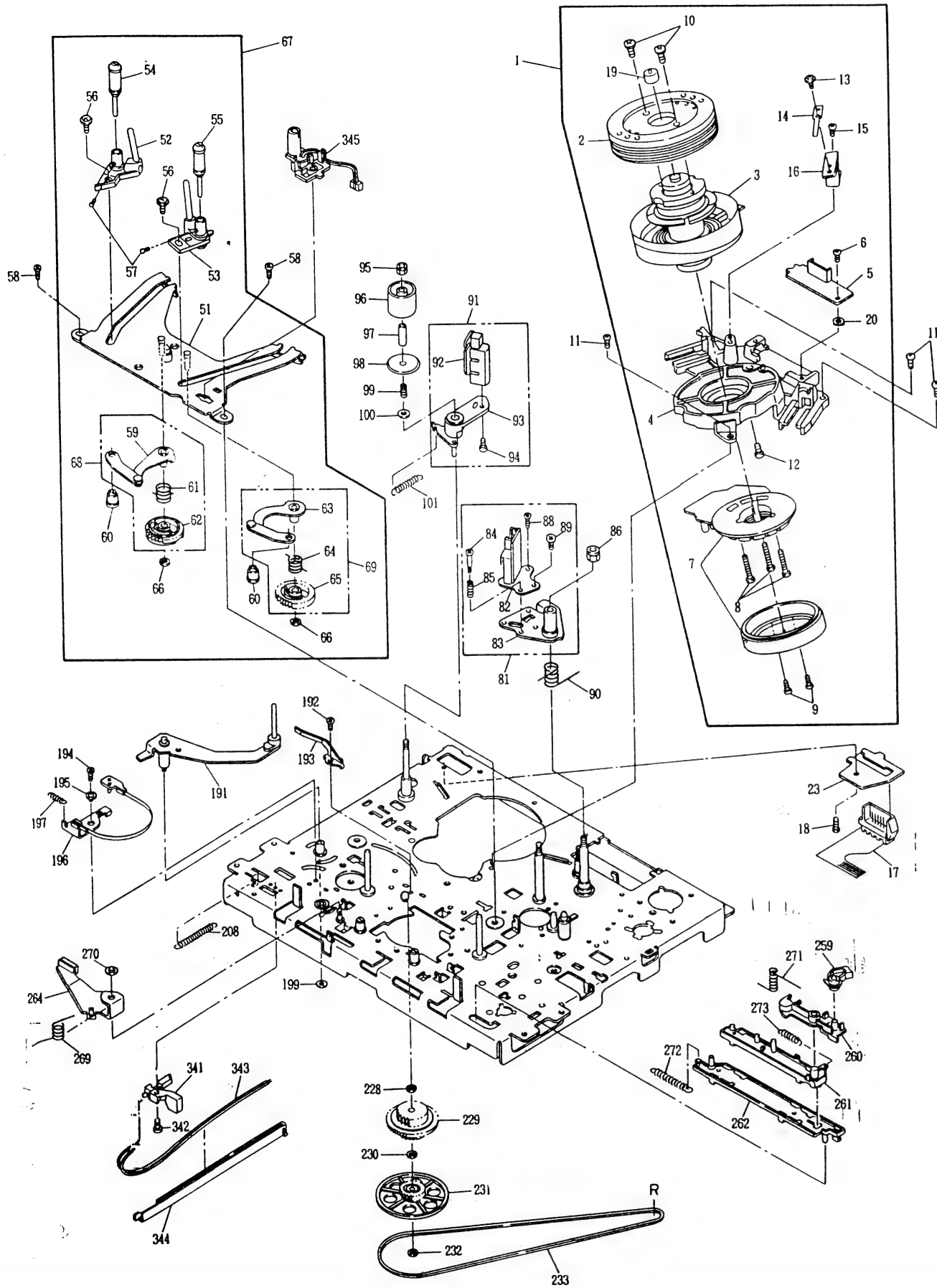
Ref. No.	Description	Part No.
Q 7001	TRANSISTOR 2SA933(Q) or TRANSISTOR 2SA933(R) or TRANSISTOR 2SA608SP(E) or TRANSISTOR 2SA608SP(F)	A933OZ
Q 7002	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	A933RZ
Q 7003	RES. BUILT-IN TRANSISTOR DTA124ES or RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	A608SEZ
Q 8002	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	A608SFZ
Q 8003	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740OZ
Q 8004	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740RZ
Q 8005	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C536SEZ
Q 8006	RES. BUILT-IN TRANSISTOR DTA114TS	C536SFZ
Q 8501	RES. BUILT-IN TRANSISTOR DTC124ES or RES. BUILT-IN TRANSISTOR 2SC3400	C3400Z
Q 8502	TRANSISTOR 2SC1740(Q) or TRANSISTOR 2SC1740(R) or TRANSISTOR 2SC536SP(E) or TRANSISTOR 2SC536SP(F)	C1740OZ
RESISTORS		
R 1501	CARBON RES. 1/5W J 100K Ω or CARBON RES. 1/6W J 100K Ω or CARBON RES. 1/4W J 100K Ω	1324104T
R 1502	CARBON RES. 1/5W J 560 Ω or CARBON RES. 1/6W J 560 Ω or CARBON RES. 1/4W J 560 Ω	132A104T
R 1503	CARBON RES. 1/5W J 1K Ω or CARBON RES. 1/6W J 1K Ω or CARBON RES. 1/4W J 1K Ω	RCXAJATZ0104
R 1504	CARBON RES. 1/5W J 3.3K Ω or CARBON RES. 1/6W J 3.3K Ω or CARBON RES. 1/4W J 3.3K Ω	1324561T
R 1505	CARBON RES. 1/5W J 2.2K Ω or CARBON RES. 1/6W J 2.2K Ω or CARBON RES. 1/4W J 2.2K Ω	132A561T
R 1506	METAL RES. 1W J 2.2 Ω	RCXAJATZ0561
R 2001	CARBON RES. 1/5W J 150 Ω or CARBON RES. 1/6W J 150 Ω or CARBON RES. 1/4W J 150 Ω	1324102T
R 2002	CARBON RES. 1/5W J 22K Ω or CARBON RES. 1/6W J 22K Ω or CARBON RES. 1/4W J 22K Ω	132A102T

Ref. No.	Description	Part No.
R 2003	CARBON RES. 1/5W J 56K Ω or CARBON RES. 1/6W J 56K Ω or CARBON RES. 1/4W J 56K Ω	1324563T
R 2004	CARBON RES. 1/5W J 10K Ω or CARBON RES. 1/6W J 10K Ω or CARBON RES. 1/4W J 10K Ω	132A563T
R 2005	CARBON RES. 1/5W J 10K Ω or CARBON RES. 1/6W J 10K Ω or CARBON RES. 1/4W J 10K Ω	RCXAJATZ0563
R 2006	CARBON RES. 1/5W J 1M Ω or CARBON RES. 1/6W J 1M Ω or CARBON RES. 1/4W J 1M Ω	1324103T
R 2007	CARBON RES. 1/5W J 22K Ω or CARBON RES. 1/6W J 22K Ω or CARBON RES. 1/4W J 22K Ω	132A103T
R 2008	CARBON RES. 1/5W J 47K Ω or CARBON RES. 1/6W J 47K Ω or CARBON RES. 1/4W J 47K Ω	RCXAJATZ0103
R 2009	CARBON RES. 1/5W J 4.7K Ω or CARBON RES. 1/6W J 4.7K Ω or CARBON RES. 1/4W J 4.7K Ω	1324105T
R 2010	CARBON RES. 1/5W J 1K Ω or CARBON RES. 1/6W J 1K Ω or CARBON RES. 1/4W J 1K Ω	132A105T
R 2011	CARBON RES. 1/5W J 10K Ω or CARBON RES. 1/6W J 10K Ω or CARBON RES. 1/4W J 10K Ω	RCXAJATZ0105
R 2012	CARBON RES. 1/5W J 39K Ω or CARBON RES. 1/6W J 39K Ω or CARBON RES. 1/4W J 39K Ω	1324223T
R 2013	CARBON RES. 1/5W J 6.8K Ω or CARBON RES. 1/6W J 6.8K Ω or CARBON RES. 1/4W J 6.8K Ω	132A223T
R 2014	CARBON RES. 1/5W J 150K Ω or CARBON RES. 1/6W J 150K Ω or CARBON RES. 1/4W J 150K Ω	RCXAJATZ0223
R 2015	CARBON RES. 1/5W J 56K Ω or CARBON RES. 1/6W J 56K Ω or CARBON RES. 1/4W J 56K Ω	1324473T
R 2016	CARBON RES. 1/5W J 56K Ω or CARBON RES. 1/6W J 56K Ω or CARBON RES. 1/4W J 56K Ω	132A473T
R 2017	CARBON RES. 1/5W J 47K Ω or CARBON RES. 1/6W J 47K Ω or CARBON RES. 1/4W J 47K Ω	RCXAJATZ0473
R 2018	CARBON RES. 1/5W J 100K Ω or CARBON RES. 1/6W J 100K Ω or CARBON RES. 1/4W J 100K Ω	1324472T
R 2019	CARBON RES. 1/5W J 47K Ω or CARBON RES. 1/6W J 47K Ω or CARBON RES. 1/4W J 47K Ω	132A472T
R 2020	CARBON RES. 1/5W J 56K Ω or CARBON RES. 1/6W J 56K Ω or CARBON RES. 1/4W J 56K Ω	RCXAJATZ0472
R 2021	CARBON RES. 1/5W J 10K Ω or CARBON RES. 1/6W J 10K Ω or CARBON RES. 1/4W J 10K Ω	1324102T
R 2022	CARBON RES. 1/5W J 1K Ω or CARBON RES. 1/6W J 1K Ω or CARBON RES. 1/4W J 1K Ω	132A102T

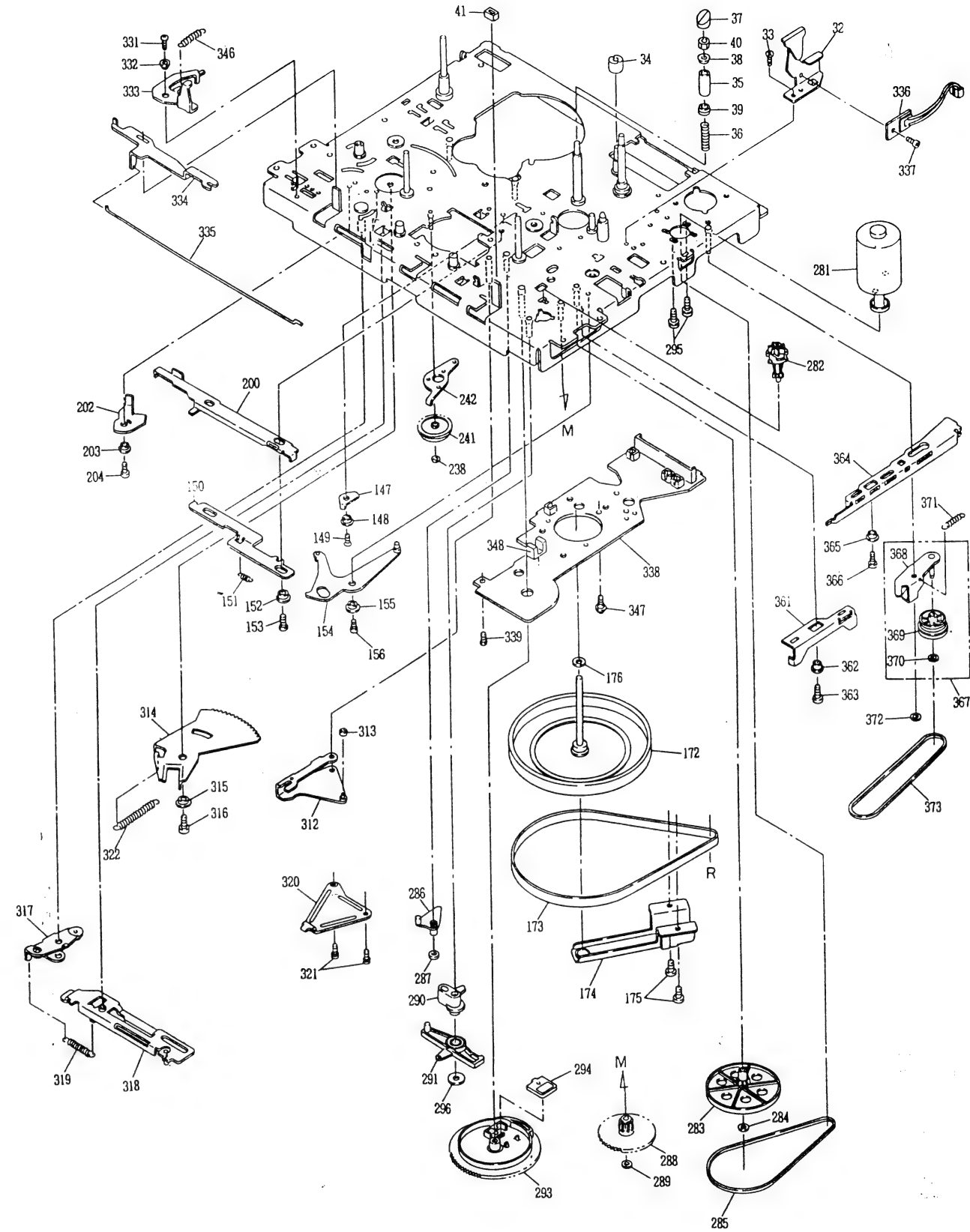
Ref. No.	Description	Part No.
R 2023	CARBON RES. 1/5W J 4.7K Ω or CARBON RES. 1/6W J 4.7K Ω or CARBON RES. 1/4W J 4.7K Ω	1324472T
R 2024	CARBON RES. 1/5W J 1K Ω or CARBON RES. 1/6W J 1K Ω or CARBON RES. 1/4W J 1K Ω	132A472T
R 2025	CARBON RES. 1/5W J 56K Ω or CARBON RES. 1/6W J 56K Ω or CARBON RES. 1/4W J 56K Ω	RCXAJATZ0472
R 2026	CARBON RES. 1/5W J 3.6K Ω or CARBON RES. 1/6W J 3.6K Ω or CARBON RES. 1/4W J 3.6K Ω	1324102T
R 2027	CARBON RES. 1/5W J 15K Ω or CARBON RES. 1/6W J 15K Ω or CARBON RES. 1/4W J 15K Ω	132A563T
R 2028	CARBON RES. 1/5W J 56K Ω or CARBON RES. 1/6W J 56K Ω or CARBON RES. 1/4W J 56K Ω	132A563T
R 2029	CARBON RES. 1/5W J 39K Ω or CARBON RES. 1/6W J 39K Ω or CARBON RES. 1/4W J 39K Ω	RCXAJATZ0563
R 2030	CARBON RES. 1/5W J 39K Ω or CARBON RES. 1/6W J 39K Ω or CARBON RES. 1/4W J 39K Ω	1324362T
R 2031	CARBON RES. 1/5W J 47K Ω or CARBON RES. 1/6W J 47K Ω or CARBON RES. 1/4W J 47K Ω	132A362T
R 2032	CARBON RES. 1/5W J 3.3K Ω or CARBON RES. 1/6W J 3.3K Ω or CARBON RES. 1/4W J 3.3K Ω	RCXAJATZ0362
R 2033	CARBON RES. 1/5W J 820 Ω or CARBON RES. 1/6W J 820 Ω or CARBON RES. 1/4W J 820 Ω	1324153T
R 2034	CARBON RES. 1/5W J 100K Ω or CARBON RES. 1/6W J 100K Ω or CARBON RES. 1/4W J 100K Ω	132A153T
R 2035	METAL RES. 2W J 2.2 Ω or METAL RES. 2W J 2.2 Ω	RCXAJATZ0153
R 2036	CARBON RES. 1/5W J 820 Ω or CARBON RES. 1/6W J 820 Ω or CARBON RES. 1/4W J 820 Ω	1324563T
R 2037	CARBON RES. 1/5W J 4.7K Ω or CARBON RES. 1/6W J 4.7K Ω or CARBON RES. 1/4W J 4.7K Ω	132A563T
R 2038	CARBON RES. 1/5W J 82K Ω or CARBON RES. 1/6W J 82K Ω or CARBON RES. 1/4W J 82K Ω	RCXAJATZ0563
R 2039	CARBON RES. 1/5W J 1.2K Ω or CARBON RES. 1/6W J 1.2K Ω or CARBON RES. 1/4W J 1.2K Ω	1324473T
R 2040	CARBON RES. 1/5W J 10K Ω or CARBON RES. 1/6W J 10K Ω or CARBON RES. 1/4W J 10K Ω	132A473T
R 2041	CARBON RES. 1/5W J 10K Ω or CARBON RES. 1/6W J 10K Ω or CARBON RES. 1/4W J 10K Ω	RCXAJATZ0473
R 2042	CARBON RES. 1/5W J 10K Ω or CARBON RES. 1/6W J 10K Ω or CARBON RES. 1/4W J 10K Ω	1324103T

DECK EXPLODED VIEW

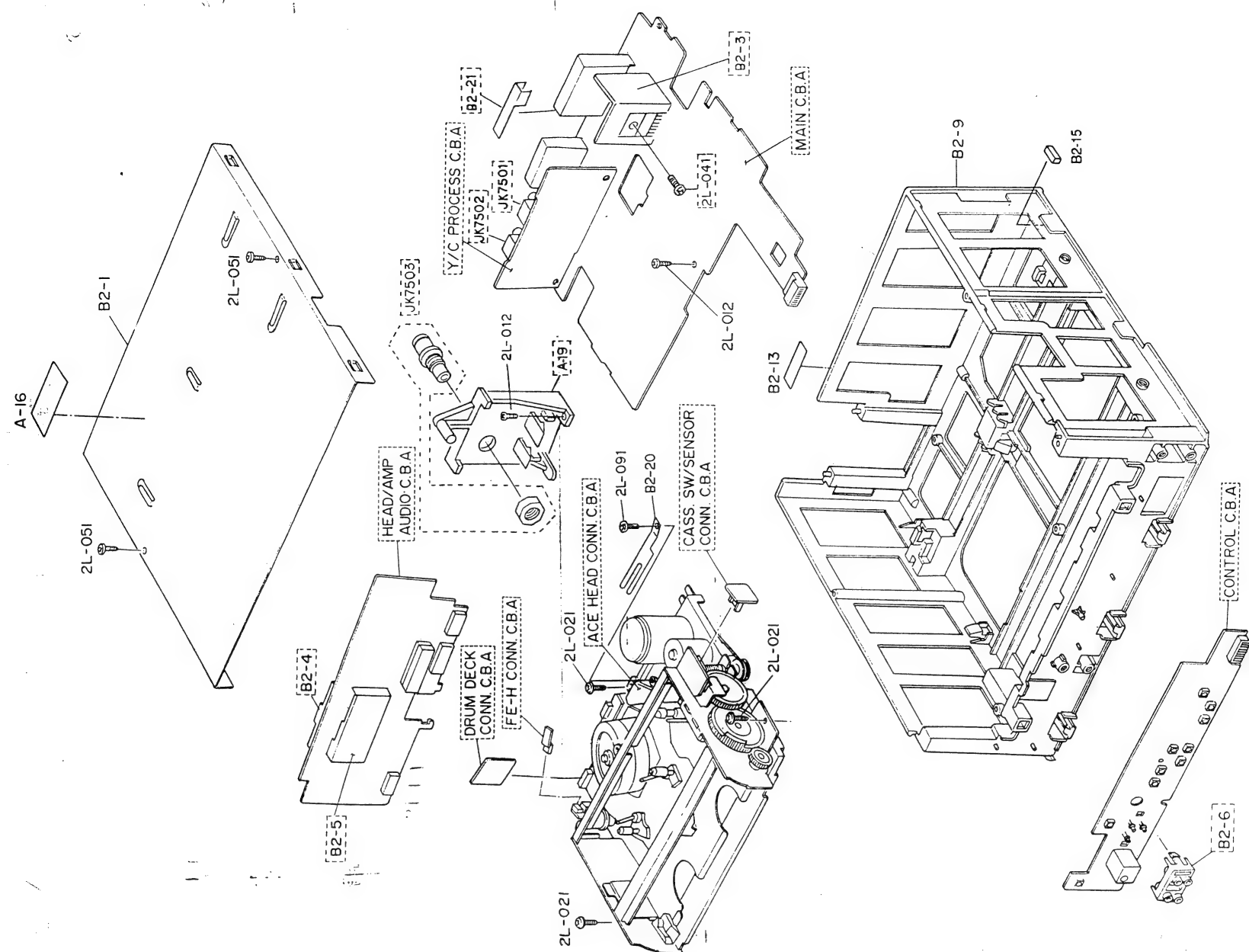
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(Drawing No. 2)

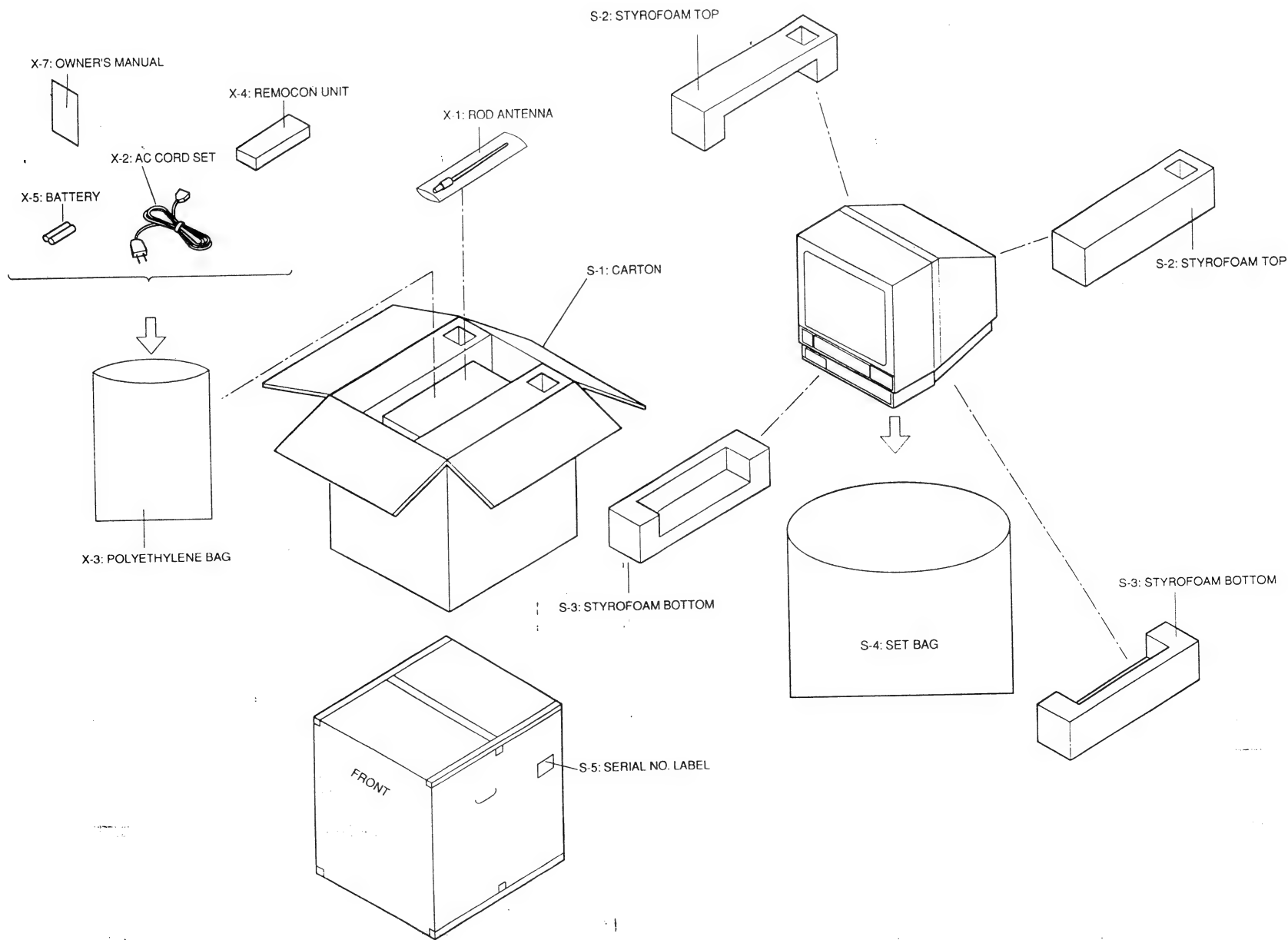


CABINET EXPLODED VIEW [VCR]



K2870EX2

PACKING EXPLODED VIEW



B6407PAC

MECHANICAL REPLACEMENT PARTS LIST [VCR]

Ref. No.	Description	Part No.
A-16	LABEL CHASSIS NO. K2874RA	0VM404211
A-19	(See Electrical Replacement Parts List)	
B2-1	COVER, TOP ASSY K1880UA	0VM201132
B2-3	(See Electrical Replacement Parts List)	
B2-4	(See Electrical Replacement Parts List)	
B2-5	(See Electrical Replacement Parts List)	
B2-6	(See Electrical Replacement Parts List)	
B2-9	CHASSIS K1870UA	0VM000015
B2-13	T.P. CUSHION K1803UA	0VM403356
B2-15	CHASSIS SPACER K1870UA	0VM403736
B2-20	PLATE, GROUND VD4841	6S50212
B2-21	(See Electrical Replacement Parts List)	
2L-012	SCREW, P-TIGHT, BIND HEAD 3X10	GBMP3100
2L-021	SCREW, P-TIGHT, WASHER HEAD 3X10	GCMP3100
2L-041	(See Electrical Replacement Parts List)	
2L-051	SCREW, P-TIGHT, BIND HEAD 3X10	GBMP3100
2L-091	SCREW, SEMS, PAN HEAD M3X5	CPM33050
	LABEL, SERIAL NO. VD5004	6E50105
	DECK ASSY TN5900P1NRM554	0VDK00085

MECHANICAL REPLACEMENT PARTS LIST [TV]

Ref. No.	Description	Part No.
TA-1	FRONT CABINET	0EM100329
TA-2	MOUNTING BOSS A	0EM400077
TA-3	REAR CABINET	0EM100330
TA-4	CONTROL DOOR	0EM300501
TA-5	DOOR PLATE	0EM401303
TA-6	POWER KNOB	0EM400164
TA-7	S/E KNOB	0EM400095
TA-8	PLATE A	0EM401304
TA-9	PLATE B	0EM401305
TA-10	CONTROL PLATE	0EM300431
TA-11	CASSETTE DOOR	0EM300437
TA-12	LATCH VD7762	6D51218
TA-13	LED PLATE	0EM401310
TA-14	RATING LABEL	0EM401306
TA-15	BRAND BADGE	0EM400975
TA-16	MAIN POWER KNOB EM40656	21NH251
TB-1	PCB HOLDER	0EM000061
TB-2	TENSION SPRING EM40808	26WH006
TB-3	CR1 MOUNTING SCREW K42419	8A00083
TB-4	DOOR SPRING	0EM400105
TB-5	DOOR CUSHION	0EM400106
TB-6	CLOTH TS7346	24WE420

TL-1	P-TIGHT SCREW BRASSIRE+ M3X8	GFMP3080
TL-2	P-TIGHT SCREW BRASSIRE+ M3X8	GLMP3080
TL-3	S-TIGHT SCREW CUP+ M3X8	GFMS3080
TL-5	B-TIGHT SCREW BIND+ M3X8	GBMB3080
TL-6	B-TIGHT SCREW BIND+ M3X8	GBMB3080
TL-7	B-TIGHT SCREW BIND+ M3X8	GBMB3080
TL-8	B-TIGHT SCREW BIND+ M3X16	GBMB3160
TL-10	TAPPING SCREW BIND+ M4X14	DBM14140
TL-12	P-TIGHT SCREW BIND+ M3X16	GBKP3160
TL-13	P-TIGHT SCREW BIND+ M3X10	GBKP3100
TL-14	P-TIGHT SCREW PAN HEAD+ M3.5X10	GBKPT100
TL-16	P-TIGHT SCREW BIND+ M4X18	GBMP4180
S-1	CARTON	0EM401307
S-2	STYROFOAM TOP	0EM000053
S-3	STYROFOAM BOTTOM	0EM000050
S-4	SET BAG	0EM300173
S-5	SERIAL NO. LABEL EM40416	24LH033
X-1	ROD ANTENNA	0EMN00542
X-2	AC CORD SET	WAE0182LW001
X-3	POLYETHYLENE BAG	23Z5350
X-4	REMOTE CONTROL UNIT	UREMT29MS006
X-5	DRY BATTERY "R03" 2PCS PACK or DRY BATTERY "R03" 2PCS PACK or DRY BATTERY "R03" 2PCS PACK or DRY BATTERY "R03" 2PCS PACK	1790902 XBOM641FA001 579W100 1790741
X-7	OWNER'S MANUAL	0EMN00556

K2874CA

DECK REPLACEMENT PARTS LIST

Ref. No.	Drawing No.	Description	Q'ty	Part No.
1	1	Cylinder Assembly (Consists of 2-10, 12-16, 20)	1	8059-72-40A
2	1	Drum, Upper	1	8059-01-19
3	1	Drum Assembly, Lower	1	8059-01-304
4	1	Mount, Cylinder	1	8059-01-01
5	1	P.C.B. Assembly, Video Out	1	8059-01-305
6	1	Screw, W Sems, M2.6 x 6	1	9973-00-00
7	1	Motor	1	6004-09-02
8	1	Screw, C-tight, M2.6 x 20	3	9055-00-00
9	1	Screw, Sems, M2.6 x 6	2	9098-00-00
10	1	Screw, Bind Sems, M3 x 8	2	9972-00-00
11	1	Screw, C-tight, M3 x 10	3	9205-00-00
12	1	Screw, B-tight M2 x 5	1	9999-18-18
13	1	Screw, Cap, M2 x 3	1	9665-00-00
☆14	1	Flat Spring Ground, Drum	1	8059-01-54
15	1	Screw, C-tight, M2.6 x 5	1	9192-00-00
16	1	Bracket, Drum Ground	1	8059-01-02
17	1	P.C.B. Assembly, DM	1	8059-01-347
18	1	Screw, C-tight, M2.6 x 5	1	9192-00-00
☆19	1	Drum Ground	1	8059-01-23
20	1	Washer, Toothed Lock, M2.6	1	9715-00-00
23	1	Connector Bracket	1	8059-01-71
32	2	Open Angle	1	8059-02-301
33	2	Screw, C-tight, M2.6 x 4	1	9191-00-00
34	2	Adjuster, Tracking	1	8059-02-29
35	2	Guide, Tape	1	8000-03-14
36	2	Spring, Tape Guide	1	8059-02-26
37	2	Cap, Guide	1	8000-03-19
38	2	Flange (C), Tape Guide	1	8000-03-28
39	2	Flange (D), Tape Guide	1	8000-03-29
40	2	Nut M3.0	1	9453-00-00
41	2	Rubber, Damper	1	8059-02-23
51	1	Loading Base	1	8059-03-501
52	1	Block (L), Loading	1	8059-03-04
53	1	Block (R), Loading	1	8059-03-05
54	1	Roller Post ST	1	8000-03-37
55	1	Roller Post ST	1	8000-03-37
56	1	Screw, Cup, M2.6 x 3	2	9665-00-00
57	1	Screw, Set, M2.0 x 3 (Plane Type)	2	9550-00-00
58	1	Screw, C-tight, M2.6 x 5	2	9192-00-00
59	1	Plate (L), Loading	1	8059-03-502
60	1	Boss, Loading	2	8059-03-14
61	1	Spring (L), Loading Gear	1	8059-03-08
62	1	Gear (L), T Loading	1	8059-03-06
63	1	Plate (R), Loading	1	8059-03-503
64	1	Spring (R), Loading Gear	1	8059-03-09
65	1	Gear (R), T Loading	1	8059-03-07
66	1	Washer, Polyslider ø2.6 x ø6 x 10.5	2	9884-00-00
67	1	Loading Base Assembly (Consists of 51-57, 60, 66, 68, 69)	1	8059-03-301
68	1	Loading Gear (L) Assembly (Consists of 59, 61-62)	1	8059-03-302
69	1	Loading Gear (R) Assembly (Consists of 63-65)	1	8059-03-303
81	3	Head Base Assembly (Consists of 82-85, 88-89)	1	8059-04-308
82	3	Head, ACE	1	6204-15-06

NOTE: ☆ Items 14 and 19 must be replaced together.

N2NRM554

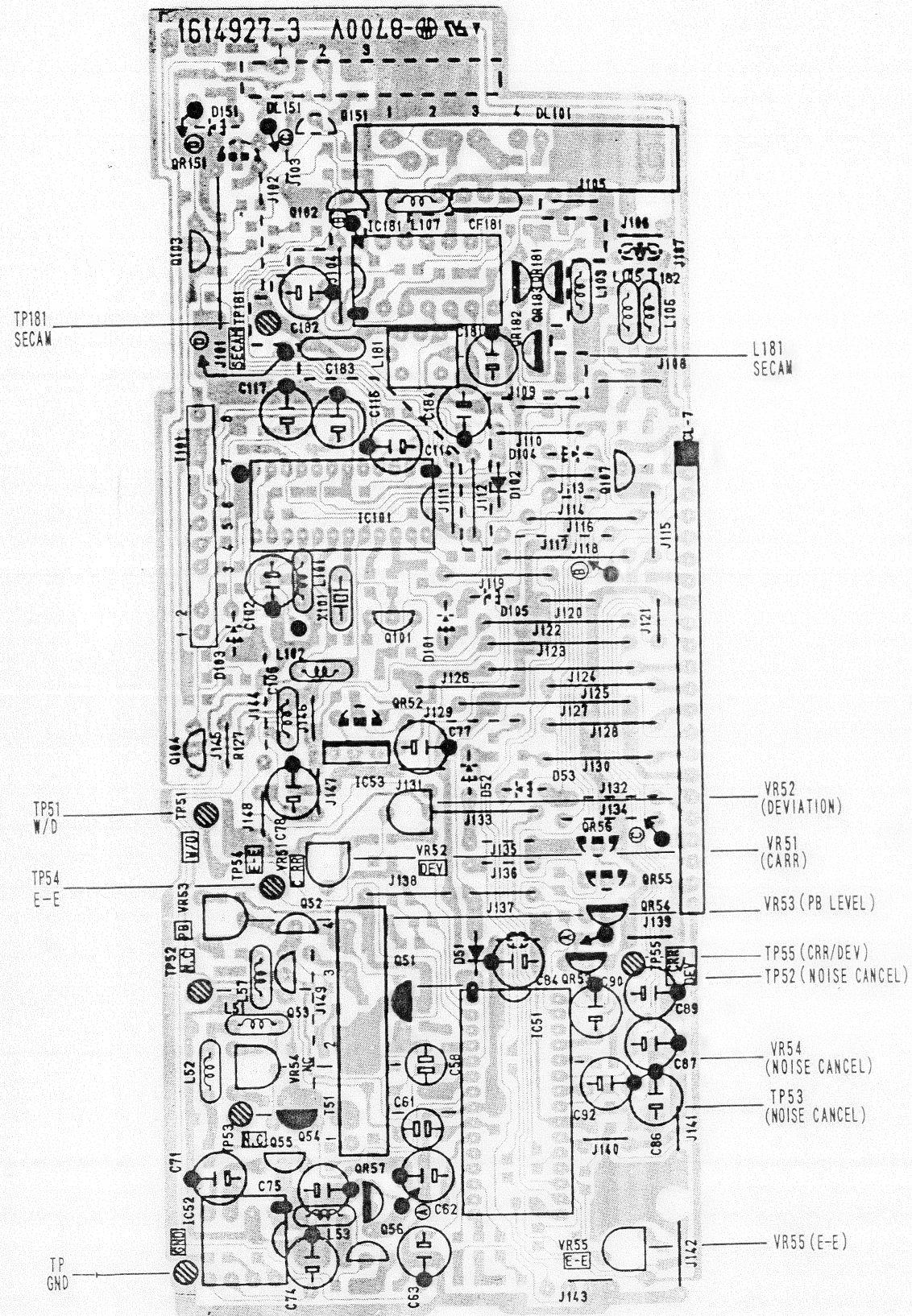
Ref. No.	Drawing No.	Description	Q'ty	Part No.
83	3	Base, Head	1	8059-04-502
84	3	Screw, Azimuth Spring	1	8000-06-26
85	3	Spring, Azimuth	1	8000-06-04
86	3	Nut, Nylon M3	1	9953-00-00
88	3	Screw, M2.6 x 7	1	9705-00-00
89	3	Screw, Set, M3 x 6	1	9999-20-25
90	3	Spring, Head	1	8059-04-15
91	3	Plate Assembly, Full Erase (Consists of 92-94)	1	8059-04-302
92	3	Head, Full Erase	1	6204-15-03
93	3	Plate, Full Erase	1	8059-04-04
94	3	Screw, Flange Bind, M2 x 3	1	9114-00-00
95	3	Nut, Nylon M3	1	9953-00-00
96	3	Roller, Impedance	1	8059-04-05
97	3	Sleeve, Impedance Roller	1	8059-04-06
98	3	Flange (A), Tape Guide	1	8059-04-07
99	3	Spring, Tape Guide Flange	1	8059-04-09
100	3	Washer, Plane ø3 x ø8 x 10.5	1	9337-00-00
101	3	Spring, FE Plate	1	8059-04-08
102	3	Plate, FE Slide	1	8059-04-10
103	3	Spring, FE Actuate	1	8059-04-12
104	3	Lever, FE Actuate	1	8059-04-11
105	3	Washer, Polyslider ø2.1 x ø5 x 10.5	1	9876-00-00
121	3	Reel Assembly	2	8059-05-301
122	3	Washer, ø3.1 x ø6 x 10.5	2	9912-00-00
131	3	Arm Assembly, Pinch Roller (Consists of 132-134)	1	8059-06-301
132	3	Arm, Pinch Roller	1	8059-06-501
133	3	Screw, M2.6 x 4	1	9038-00-00
134	3	Roller (A), Pinch	1	8000-09-22
135	3	Washer, Polyslider, ø5 x ø8 x 10.5	1	9999-03-11
136	3	Screw, Sems, M2.6 x 4	1	9096-00-00
137	3	Collar	1	8059-06-18
138	3	Angle, P Actuate	1	8059-06-05
139	3	Holder, P Angle	1	8059-06-19
140	3	Spring, P Roller	1	8059-06-20
141	3	Plate (A), P Slide	1	8059-06-24
142	3	Collar	1	8059-06-18
143	3	Screw, C-tight, M2.6 x 5	1	9192-00-00
144	3	Joint Plate	1	8059-06-06
145	3	Arm, P Actuate	1	8059-06-04
146	3	Spring, P Actuate Arm	1	8059-06-09
147	2	Crank, P	1	8059-06-12
148	2	Collar, P Crank	1	8059-06-13
149	2	Screw, C-tight FH (For Camera), M2.6 x 4	1	9999-18-10
150	2	Slider, P	1	8059-06-10
151	2	Spring, P Slider	1	8059-06-23
152	2	Collar, P Slider	1	8059-06-11
153	2	Screw, C-tight, M2.6 x 5	1	9192-00-00
154	2	Lever, P Cam	1	8059-06-502
155	2	Collar, P Cam Lever	1	8059-06-17
156	2	Screw, C-tight, M2.6 x 5	1	9192-00-00
157	3	Plate (B), P Slide	1	8059-06-25
171	3	Motor Assembly, Capstan	1	8059-07-302
172	2	Capstan, Flywheel	1	8059-07-14
173	2	Belt, Main	1	8059-07-10
174	2	Angle Assembly, Flywheel	1	8059-07-303
175	2	Screw, C-tight, M3 x 5	2	9202-00-00
176	2	Washer, ø3.1 x ø6 x 10.5	1	9912-00-00
177	3	Housing Assembly, Metal	1	8059-07-301
178	3	Screw, C-tight, M2.6 x 8	3	9195-00-00

N2NRM554

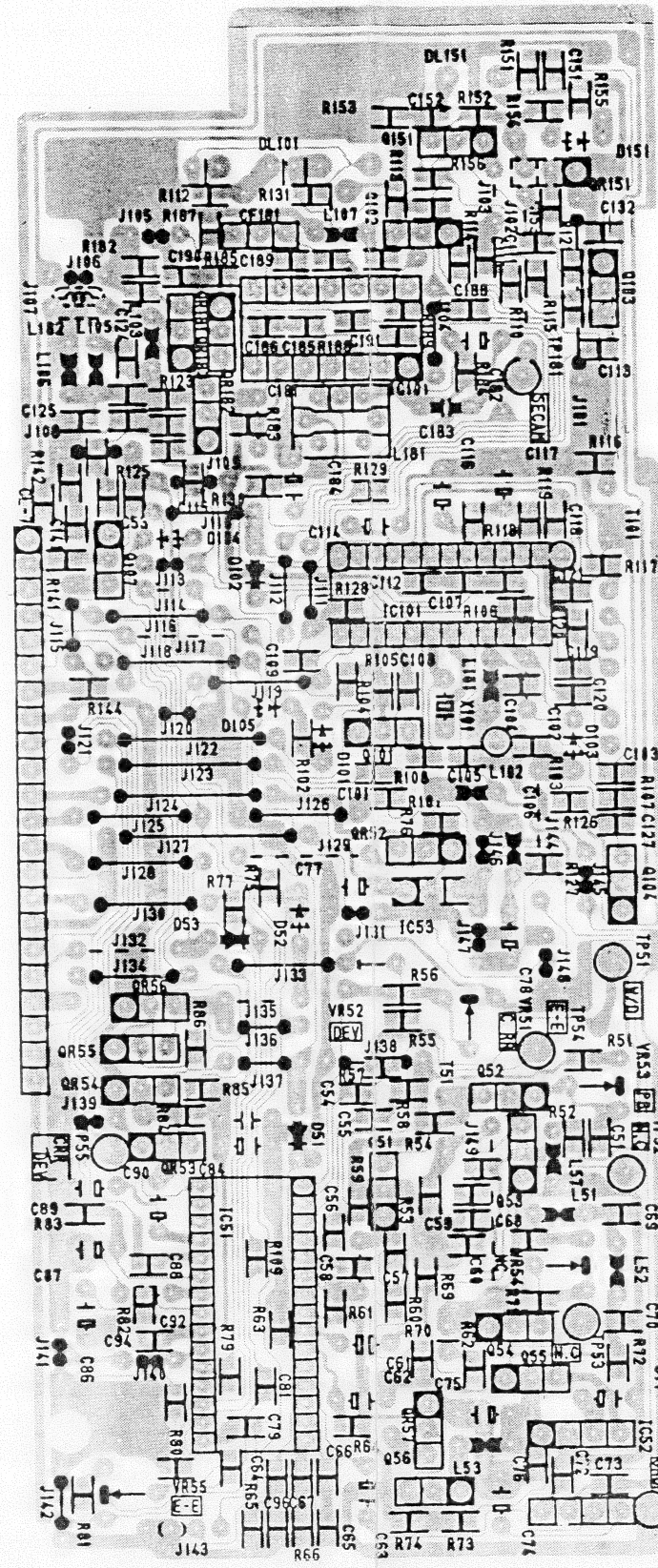
Ref. No.	Drawing No.	Description	Q'ty	Part No.
179	3	Screw, Sems, M3 x 4	2	9105-00-00
180	3	Nylon Washer 2.92 x 5 x 0.5	1	9999-06-03
191	3	Arm, Back Tension	1	8059-08-501
192	3	Screw, C-tight, M2.6 x 4	1	9191-00-00
193	3	Support, Back Tension	1	8059-08-09
194	3	Screw, C-tight, M2.6 x 4	1	9191-00-00
195	3	Collar, Band Holder	1	8059-08-15
196	3	Band, BT	1	8059-08-302
197	3	Spring, Band Holder	1	8059-08-17
198	1	Spring, Back Tension	1	8059-08-13
199	3	Washer, Polyslider, ø2.1 x ø4 x 10.5	1	9999-03-15
200	2	Plate, BT Change	1	8059-08-10
202	2	Lever, BT Return	1	8059-08-23
203	2	Collar	1	8059-06-18
204	2	Screw, C-tight, M2.6 x 5	1	9192-00-00
205	1	Plate, BT Actuate	1	8059-08-19
206	1	Lever, BT Actuate	1	8059-08-18
207	1	Collar, BT Actuate Plate	2	8059-08-21
208	3	Spring, BT Actuate Plate	1	8059-08-20
209	1	Collar	1	8059-06-18
210	1	Screw, S-tight (For Camera) M2.6 x 3.5	2	9840-00-00
211	1	Screw, C-tight M2.6 x 5	1	9192-00-00
221	3	Plate Assembly (Consists of 222-224, 226, 238, 263, 265-266, 268)	1	8059-09-312
222	3	Plate Semi Assembly	1	8059-09-503
223	3	Screw, Sems, M2 x 4	2	9077-00-00
224	3	Screw, C-tight, M2.6 x 4	1	9192-00-00
226	3	Gear, Reel Drive	2	8059-09-06A
228	3	Washer, Nylon, ø3.1 x ø6 x 10.3	1	9853-00-00
229	3	Clutch Assembly	1	8059-09-311
230	3	Washer, Nylon, ø2.98 x ø6 x 10.3	1	9999-06-04
231	3	Pulley Assembly, Middle	1	8059-09-301
232	3	Washer, Polyslider, ø2.6 x ø6 x 10.5	1	9884-00-00
233	3	Belt, Drive	1	8059-09-17
234	3	Arm Assembly, P Gear	1	8059-09-303
235	3	Gear, Play	1	8059-09-20A
236	3	Arm Assembly, RF Gear	1	8059-09-304
237	3	Gear, FF	1	8059-09-22A
238	2,3	Washer, Polyslider, ø1.6 x ø3.8 x 10.3	3	8059-09-22A
239	3	Gear Assembly, P (Consists of 234-235, 238)	1	9743-00-00
240	3	Gear Assembly, RF (Consists of 236-238)	1	8059-09-314
241	2	Return Gear Assembly	1	8059-09-315
242	2	Return Arm	1	8059-09-53
251	3	Shoe, Brake	2	8059-10-19
252	3	Arm, S Brake	1	8059-10-01
253	3	Spring, Brake Arm	2	8059-10-02
254	3	Arm, T Brake	1	8059-10-03
255	3	Arm Assembly, S Brake (Consists of 251, 252)	1	8059-10-301
256	3	Arm Assembly, T Brake (Consists of 251, 254)	1	8059-10-302
257	3	Lifter, Brake	1	8059-10-16
258	3	Actuator, L Brake	1	8059-10-17
259	3	Hook, Trigger	1	8059-10-14
260	3	Lever, Trigger	1	8059-10-13
261	3	Plate, Brake	1	8059-10-11
262	3	Brake Actuate, Base	1	8059-10-09
263	3	Brake, Take-up soft	1	8059-10-303
264	3	Brake, S Soft	1	8059-10-304
265	3	Screw, SL FH (For Camera), M2 x 3	1	9974-00-00
266	3	Collar, Take-up Soft Brake Arm	1	8059-10-07
267	3	Spring, L Brake Actuator	1	8059-10-18

N2NRM554

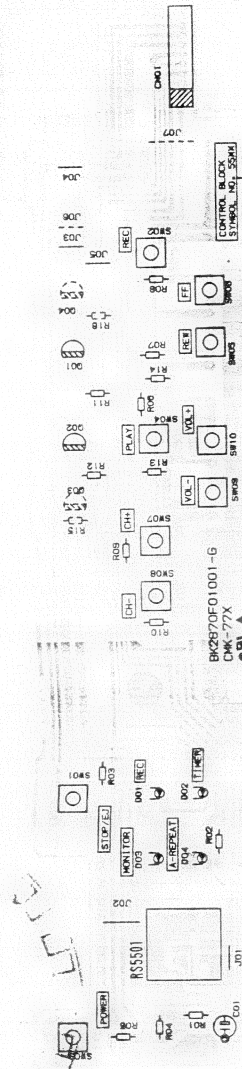
Y/C Process C.B.A. (Top View)



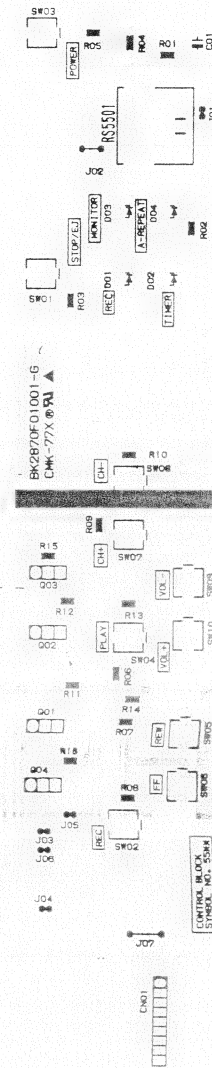
Y/C Process C.B.A. (Bottom View)



Control C.B.A. (Top View)



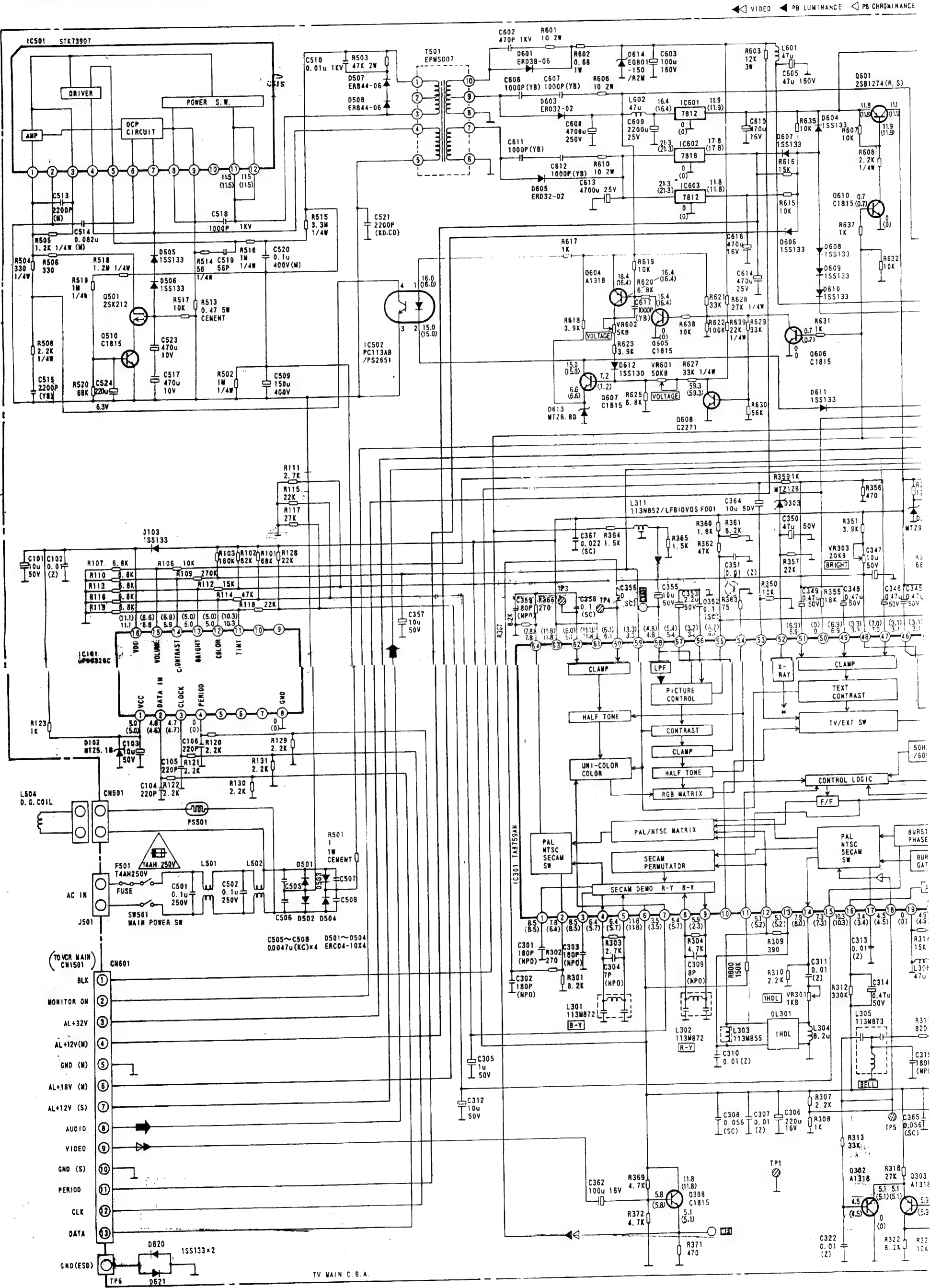
Control C.B.A. (Bottom View)

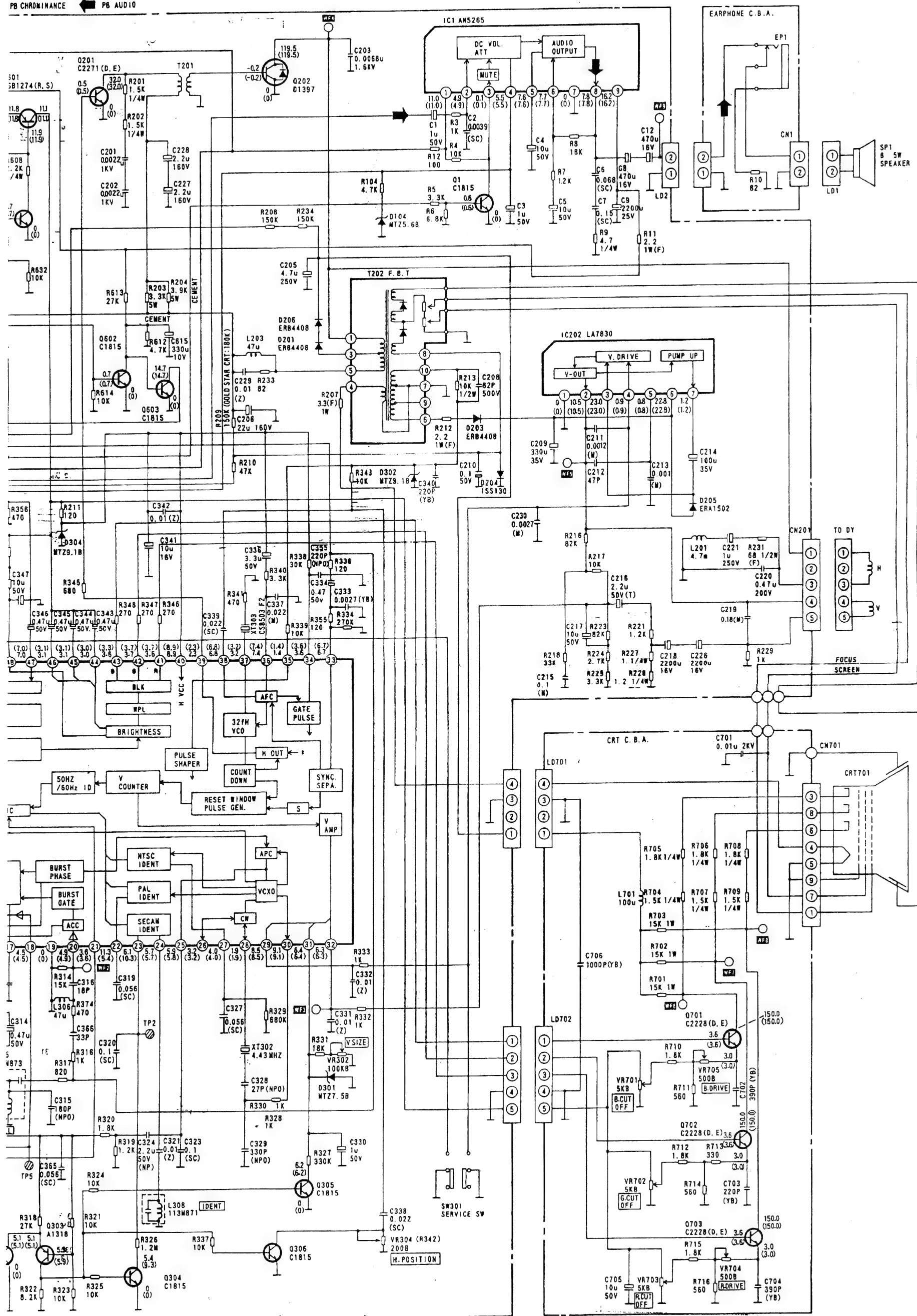


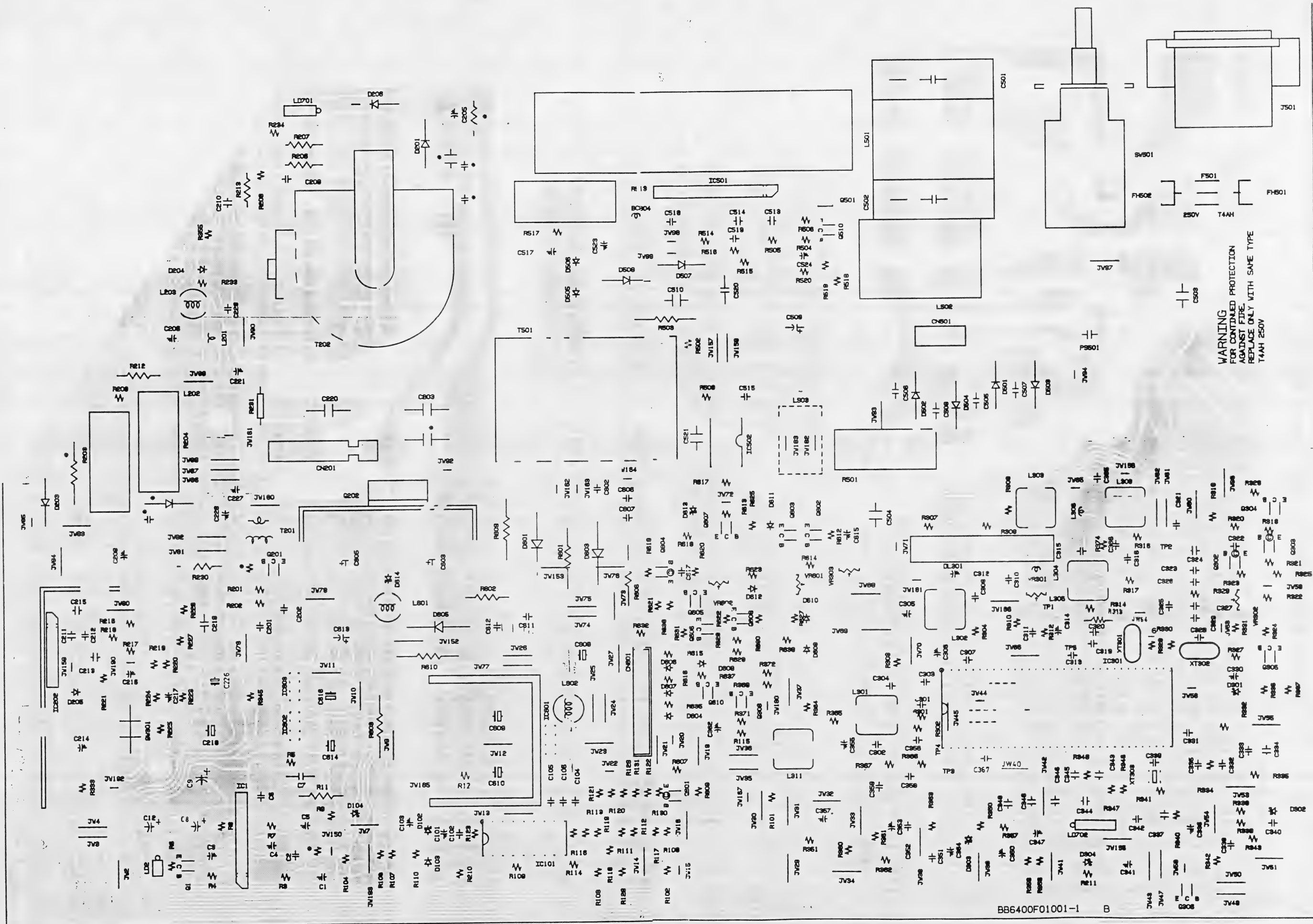
Symbol numbers are shown one(1) and two(2) digits in this area abbreviation of 5500 series except jumper wires.

Symbol numbers are shown one(1) and two(2) digits in this area abbreviation of 5500 series except jumper wires.

TV Main Schematic Diagram

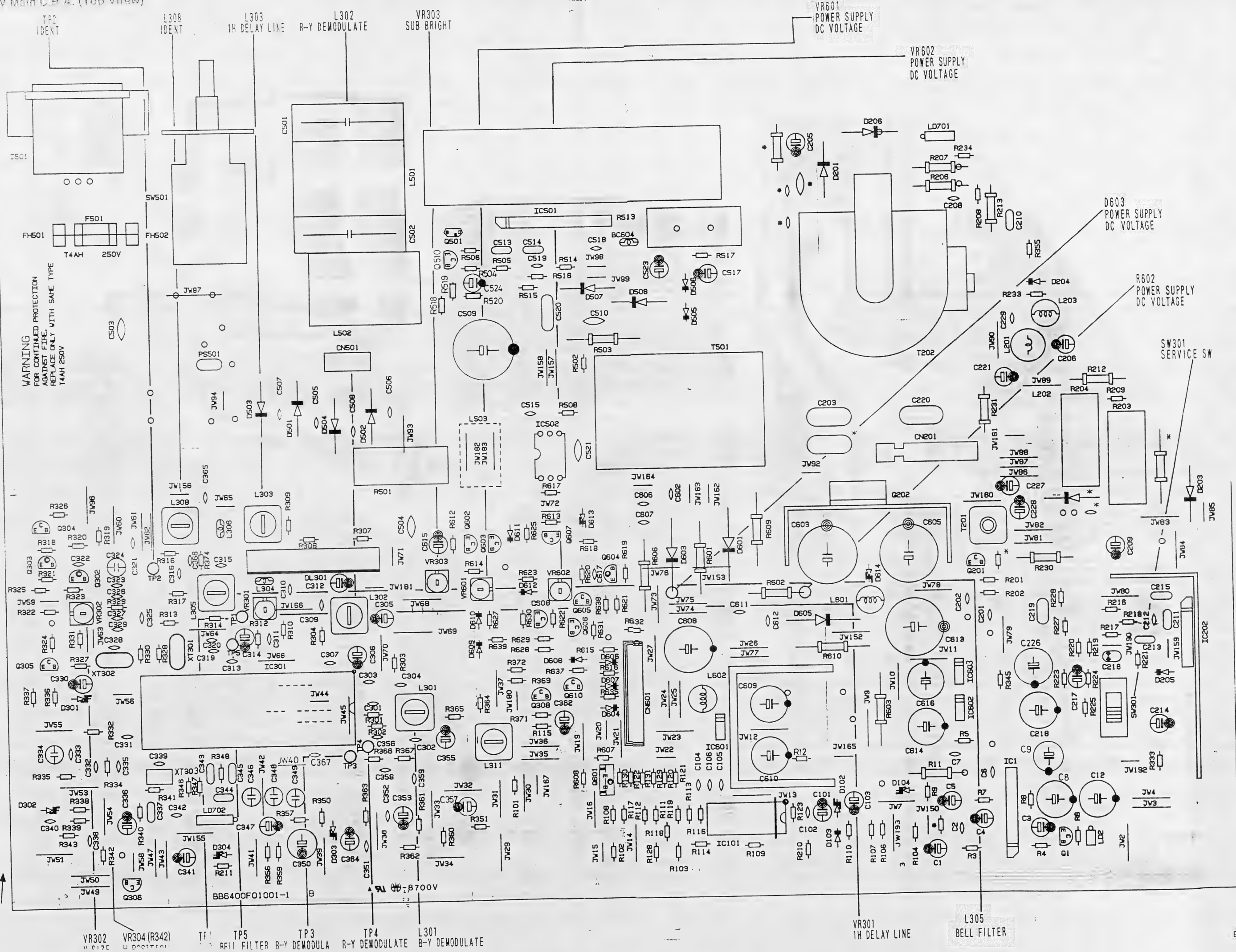






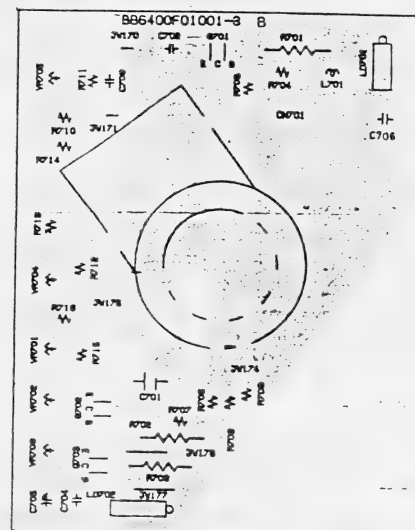
BB6400F01001-1

B

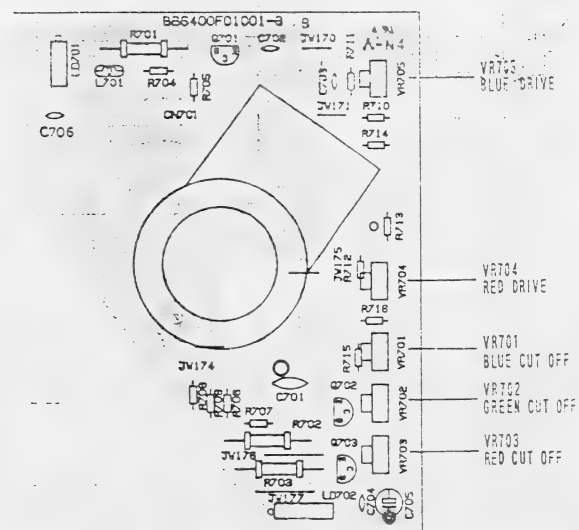


VCR Main C.B.A. (Top View)

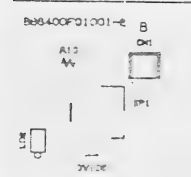
(Bottom View)



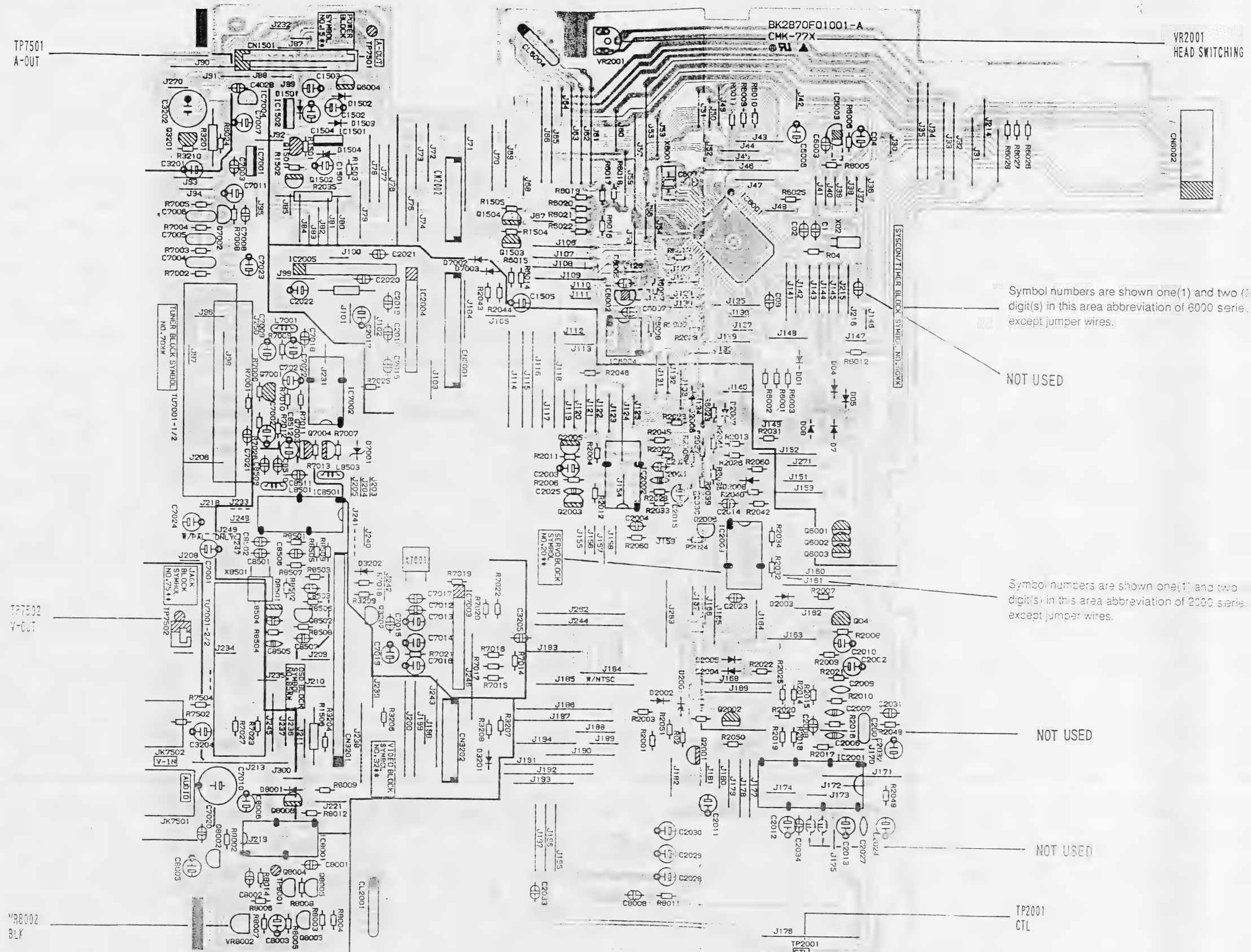
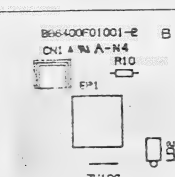
(Top View)



(Bottom View)

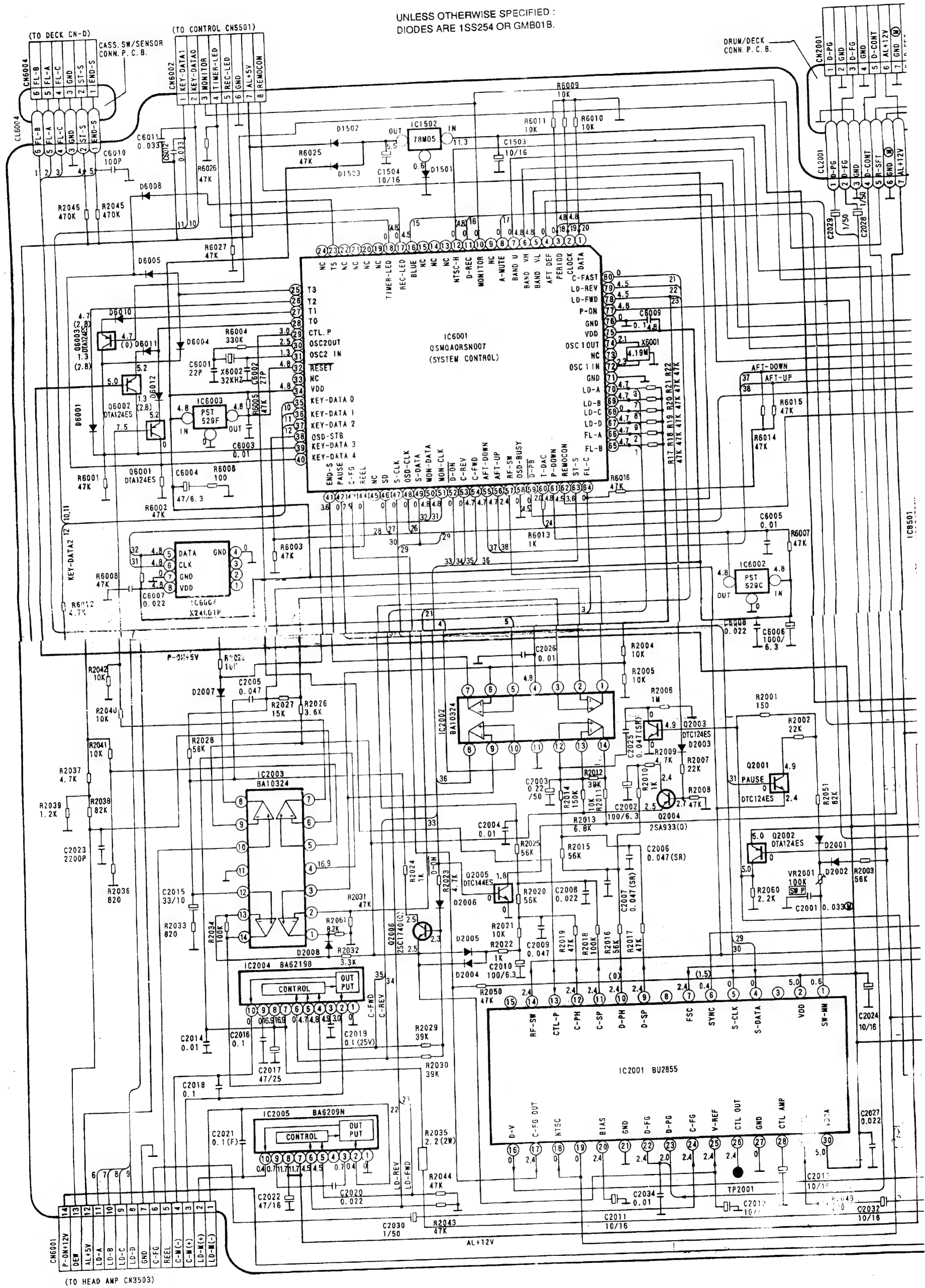


(Top View)



VCR Main Schematic Diagram

UNLESS OTHERWISE SPECIFIED :
DIODES ARE 1SS254 OR GMB01B.



CASS.SW/Sensor Conn. C.B.A.



(Bottom View)

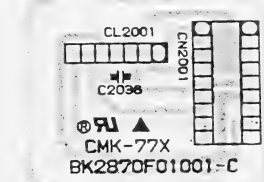
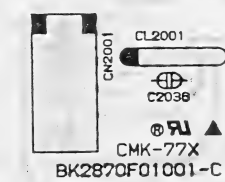


BK2870F01001-B

Drum Deck Conn. C.B.A.

(Top View)

(Bottom View)



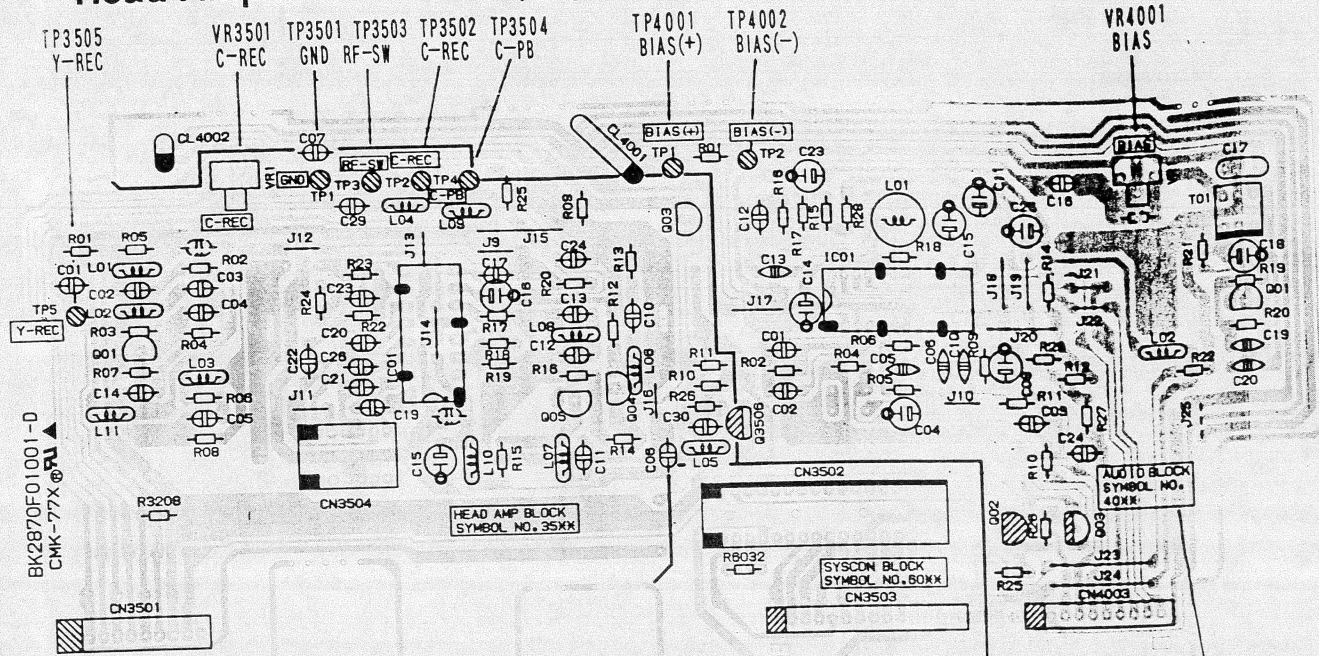
BK2870F01001-C

BK2870F01001-A

[illegible]

K2870SC-HEAD

Head Amp/Audio C.B.A. (Top View)

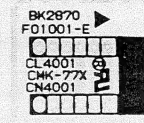
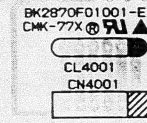


Symbol numbers are shown one(1) and two (2) digit(s) in this area abbreviation of 4000 series except jumper wires.

ACE Head Conn. C.B.A.

(Top View)

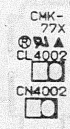
(Bottom View)



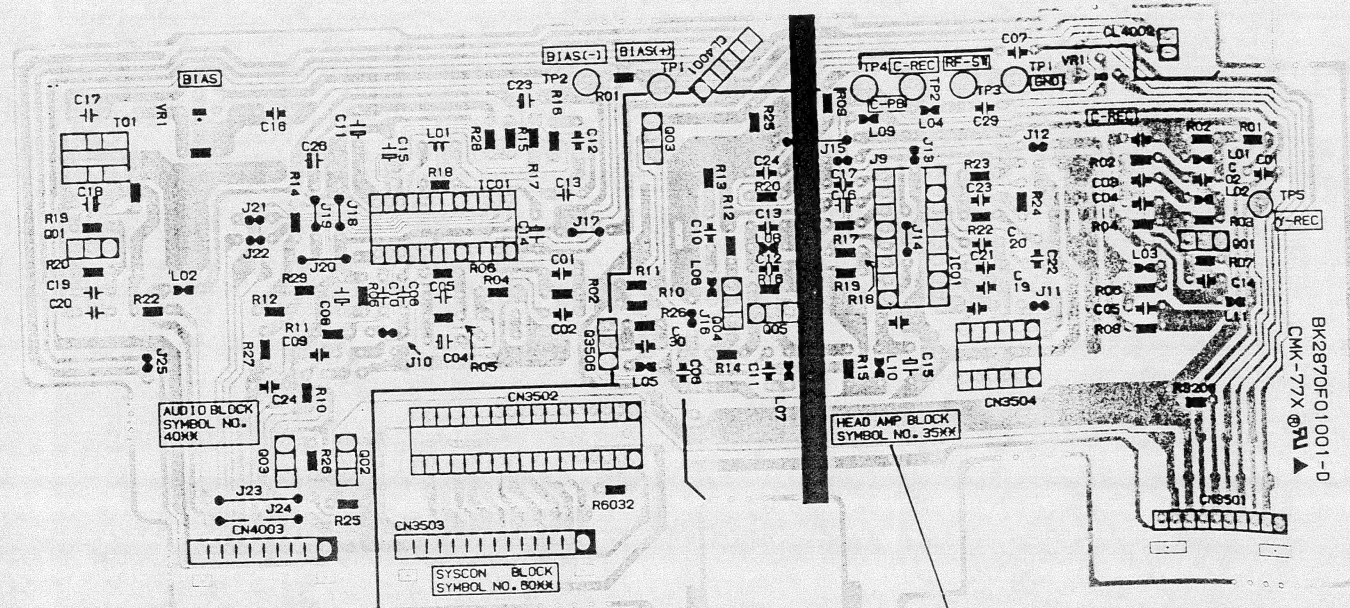
FE Head Conn. C.B.A.

(Top View)

(Bottom View)



Head Amp/Audio C.B.A. (Bottom View)



Symbol numbers are shown one(1) and two (2) digit(s) in this area abbreviation of 3500 series except jumper wires.

BK2870F01001-D

SCHEMATIC DIAGRAMS / C.B.A. AND TEST POINTS

STANDARD NOTES

WARNING

Critical components having special safety characteristics are identified with a Δ by the Ref. No. in the parts list and enclosed within a broken line * (where several critical components are grouped in one area) along with the safety symbol Δ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

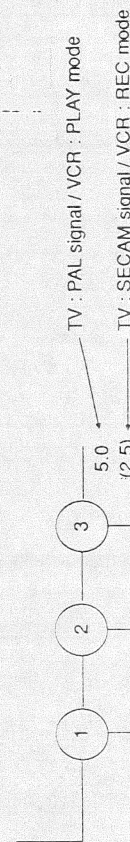
*Broken Line: — — — — —

Notes:

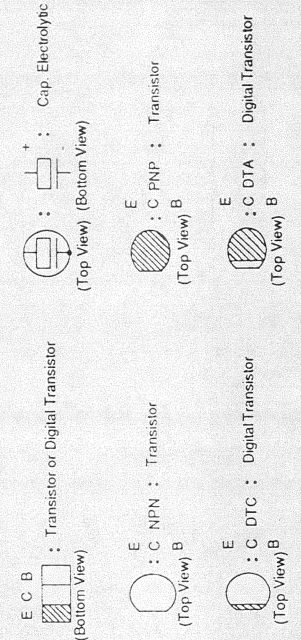
- Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
- All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
- Resistor wattages are 1/5W or 1/6W unless otherwise specified.
- All capacitance values are indicated in μF ($P=10^{-6}$).
- All voltages are DC voltages unless otherwise specified.
- Voltage indications for PLAY and REC mode on Schematics are as shown below.

Note of Capacitors:

(M) --- Mylar Cap. (NP) --- Non-Polarized Cap. (SC) --- Semiconductor Cap.
Temperature Characteristics of Capacitors are noted with the following:
(B), (YB) --- $\pm 10\%$ (SR) --- $\pm 15\%$ (F) --- $\pm 30\sim 80\%$ (NP0) --- $0\pm 60ppm/^{\circ}C$ (SL) --- $\pm 350\sim 1000ppm/^{\circ}C$
Tolerance of Capacitors are noted with the following:
(K) --- $\pm 10\%$ (Z) --- $\pm 80\sim 20\%$



☆ Capacitors and transistors are noted with the following symbols.



PB LUMINANCE ◁ PB CHROMINANCE ◁◁ REC LUMINANCE ◁◁◁ REC CHROMINANCE

The diagram illustrates a complex electronic circuit for a video receiver, featuring numerous integrated circuits (ICs) and their associated components. The circuit is organized into several functional blocks:

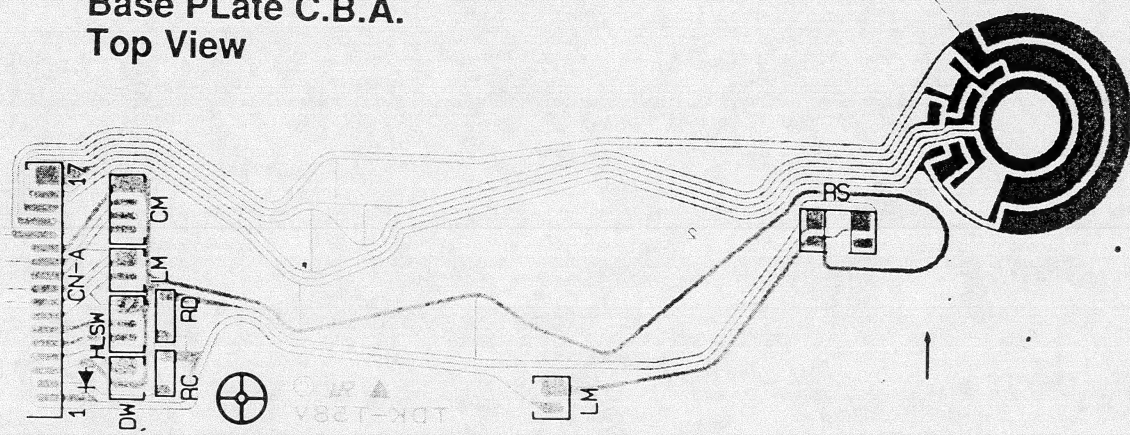
- Input Section:** Includes IC101 (LA7333) and IC102 (2SC2058) for initial signal processing.
- Processing Section:** Contains IC103 (2SC1740), IC104 (2SC1740), IC105 (2SC1740), IC106 (2SC1740), IC107 (2SC1740), IC108 (2SC1740), IC109 (2SC1740), IC110 (2SC1740), IC111 (2SC1740), IC112 (2SC1740), IC113 (2SC1740), IC114 (2SC1740), IC115 (2SC1740), IC116 (2SC1740), IC117 (2SC1740), IC118 (2SC1740), IC119 (2SC1740), IC120 (2SC1740), IC121 (2SC1740), IC122 (2SC1740), IC123 (2SC1740), IC124 (2SC1740), IC125 (2SC1740), IC126 (2SC1740), IC127 (2SC1740), IC128 (2SC1740), IC129 (2SC1740), IC130 (2SC1740), IC131 (2SC1740), IC132 (2SC1740), IC133 (2SC1740), IC134 (2SC1740), IC135 (2SC1740), IC136 (2SC1740), IC137 (2SC1740), IC138 (2SC1740), IC139 (2SC1740), IC140 (2SC1740), IC141 (2SC1740), IC142 (2SC1740), IC143 (2SC1740), IC144 (2SC1740), IC145 (2SC1740), IC146 (2SC1740), IC147 (2SC1740), IC148 (2SC1740), IC149 (2SC1740), IC150 (2SC1740), IC151 (2SC1740), IC152 (2SC1740), IC153 (2SC1740), IC154 (2SC1740), IC155 (2SC1740), IC156 (2SC1740), IC157 (2SC1740), IC158 (2SC1740), IC159 (2SC1740), IC160 (2SC1740), IC161 (2SC1740), IC162 (2SC1740), IC163 (2SC1740), IC164 (2SC1740), IC165 (2SC1740), IC166 (2SC1740), IC167 (2SC1740), IC168 (2SC1740), IC169 (2SC1740), IC170 (2SC1740), IC171 (2SC1740), IC172 (2SC1740), IC173 (2SC1740), IC174 (2SC1740), IC175 (2SC1740), IC176 (2SC1740), IC177 (2SC1740), IC178 (2SC1740), IC179 (2SC1740), IC180 (2SC1740), IC181 (2SC1740), IC182 (2SC1740), IC183 (2SC1740), IC184 (2SC1740), IC185 (2SC1740), IC186 (2SC1740), IC187 (2SC1740), IC188 (2SC1740), IC189 (2SC1740), IC190 (2SC1740), IC191 (2SC1740), IC192 (2SC1740), IC193 (2SC1740), IC194 (2SC1740), IC195 (2SC1740), IC196 (2SC1740), IC197 (2SC1740), IC198 (2SC1740), IC199 (2SC1740), IC200 (2SC1740).
- Output Section:** Includes IC151 (LA7333) and IC152 (2SC1740) for final signal processing and output.

The diagram also shows various passive components such as resistors (R1 through R100), capacitors (C1 through C100), and diodes (D1 through D100). The circuit is powered by a 5V supply (P-ON 5V) and includes a carrier signal input (CARR-DEV).

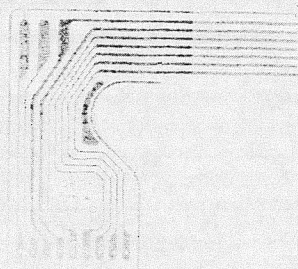
The diagram is labeled with various component values and pin numbers, providing a detailed view of the internal circuitry of the video receiver.

K2870SC-Y/C

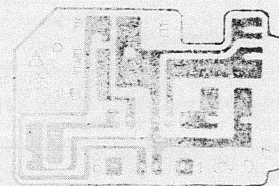
Base Plate C.B.A.
Top View



Start Sensor C.B.A.
Top View

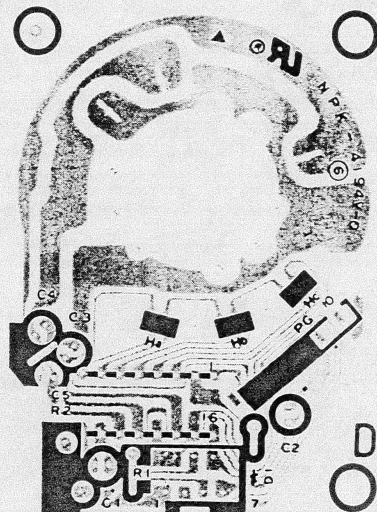


Deck, Front Loading C.B.A.
Top View

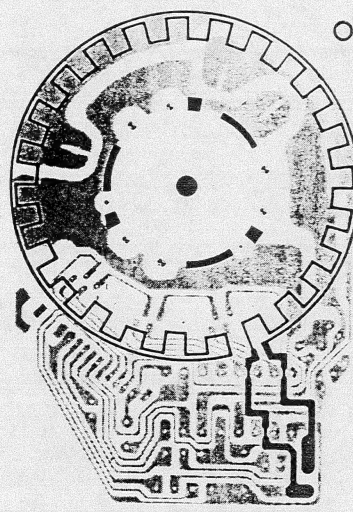


Drum Motor C.B.A.

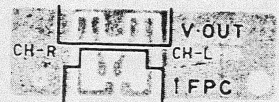
Bottom View



Top View



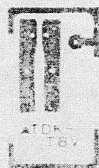
Video Out C.B.A.
Top View



End Sensor C.B.A.
Top View



Full Erase Head C.B.A.



ACE Head C.B.A.



Lamp C.B.A.
Top View



Control Schematic Diagram

